Testoil-ISO 4113

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Test Specifications
Fuel Injection Pumps MP 001/4 MB 2,0 9 4

4. Edition

En

PES 4 M 50 C 320 RS 103 RSF 375 / 2250 M 19 Komb.Nr. 0 400 074 978 Sales model 400 074 977

and Governors

company Daimler-Benz

0m 615 44 kW (60 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

1,70-1,80 (1,65-1,85)

man (from 80C)

20==

Control rod travel

Rotational speed	Control rod travel	Fuel delivery	Ofference	Control rod travel	Fuel delivery	Spring pro-tensioning toomponenting valves
rev/min	mm.	Cm ³ /100 strokes	cm ³ /100 strokes	mm.	cm ³ /100 strokes	-
1	2	3	4	2	3	6
1000	12,7+0,	3,2-3,3	0,25(0,3)			
375	6,9-7,1	0,65-0,75	0,1(0,15	•		
1800	:	· •	0,25(0,3)			
2200	• • •	; •	0,25(0,3)		,	†

Set uniform delivery according to the values in ____

Checking values in brachets

B. Governor Settings

Lower rated s	peed		Upper rated	speed		Marietons in co	erd bor lower	
Degree of deflection	Control radi	Rotational speed	Degree of deflection	Control rod travel	Retational speed		Rotational	Control rod travel
of control lever	mm mm	164.441	of control		164 Marin	#	16414	
1	: : 2	3	.4	5	6	7	8	i9
3	min.12,)6,9-7,1)** 2,5	250 375 400 - 720-820		11.8-12 7.2-7. 0 - 1.	6 2500	999	1800 1000 Santcharge	min. 20,3 12,2-12,4 12,7-12,8

C. Settings for Fuel Injection Pump with Governor Mounted

Full-load d	Selvery (19)	Full-load speed (a)	Variations delivery		Starting little	lual delivery	
Test oil te	mp 40°C (104°F)			18		;	Ofference
AAVUMI AAVUMI	cm³/1000 strokes	revimen	-	cm³/1000 strokes	-	cm1/1000 strokes	cm³/1000 strokes
1	2	э	4	5	6	7	8
2200	33,0-35,0 (32,0-36,0)	2500* RW 7,2-7,6	1800	33,0-35,0 (32,0-36,0)	100	min. 55,0	6,0
	(02,0 00,0,		1000	32,0-33,0	375	6,5-7,5	1,0
				(32,0-35,0)		(5,5-9,0)	1,5 2,5 see
					2500	13,0-17,0 (12,0-18,0)	2,5 point
			1		1	(12,0-10,0)	3,0

Checking values in brackets

Ca. 3,5 XXXXXXX

- 1. ** Set the idle auxiliary spring at n = 400 min⁻¹ so that the control-rod travel is exceeded by 0.1 0.2 mm.
- 2. Setting the idle control-lever position:

At 1000 min⁻¹, control rod travel 1.9 - 2.0 mm

3. Check the idle auxiliary spring shutoff

Control-lever position 47°. After change-over point up to 550 min⁻¹ no change in control-rod travel. Control-lever position 30°. Speed range 350 min⁻¹ - 450 min⁻¹

4. Check the pneumatic shutoff box

Control lever at idle stop.

At n = 375 min⁻¹ and pu = 450 mbar (vacuum)

(338 mmHg) the control rod must return quickly to control-rod travel = 0 mm.

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 10,0 o

2. Edition

Testoil-ISO 4113

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PE 6 P 110 A 320 RS 3080

ROV 250-1100 PA 589

supersedin 81
company Vol vo
TD 100 GA
engine:

All test specifications are valid for Boach Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	stroke (3,5-3,6 3.45-3.65)	mm (from BDC)*	RW 9,0	- 12,0 mm	
Rotational speed		Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
revirsin 1	7 2	cm ³ /100 strokes 3	cm³/ 100 strokes 4	mm 2	cm ³ /100 strokes 3	mm 6
700	12,2+0,1	16,7 - 16,9	0,4(0,8)			
250	4,0-4,2	1,6- 2,0	0,3(0,7)			1
		<u> </u>		i	i	l l

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed	•		Intermediate	rated sp	990	-	Lower rated	speed		~	• • • • • • • • •
deflection	rev/min Control rod trave	Control rod travel	①	Degree of deflection of control		Conta trave	roi rod	Degree of deflection		Control rod travel	Second a	ioove travel
lever 1	70.T) 2	revinus 3	②	lever 4	rev/min 5	mm 6	•	of control lever 7	rev/min 8	mm 3	rev/min	mm 11
Bax.	1180	15,2-17	,8	•	-		-	ca. 8	100	min.5,6		0,6-0,9
ca. 63	4,0	1160-117 1225-12	55						250 305-:	4,0-4,2 365=2,0⊞m	670	5,4-6,4 6,4-6,6
	1350	0 - 1	,0					(1100	7,3

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil test	divery d stop np. 40°C (104°F) 2	Rotational speed (20) imitation intermediate speed	Fuel deli- high idle :	rery characteristics (Se		fuel delivery (6)	Torque- travel	control S
1	chi ³ /1000 stohes 2	rowania 🍪 3	routinis 4	cm³/1000 strokes 5	rovAmin 6	cm¥1000 strokes	rovAmin	travel mm
LDA 700	0,75 bar 167,0-169,0 (164,0-172,0)		LDA 700	0 bar 121,0-125,0 (118,0-128,0		160,0-190,0 / 20,0-21	1	

Checking values in brackets

* 1 mm less control rod travel then cot. 2

Test at n =

500

rev/min decreasing pressure – in bar gauge pressure

Pump/governor	Setting	Measurement	XXXXIIII nution Control rod trayet XXXXIII Notes
	Gauge pressure = bar	1	mm (1) .
LS 3080 +	0,54		11,8 - 11,9
PA 589		0.25	12,2 - 12,3
		0	9.7 - 9.9
		0,34	10,5 - 10,7
	1		

Notes:

(1) when n =

rev/min and gauge pressure =

bar (= maximum futi-load control rod travel)

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Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 15,8 e

2. Edition

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PE 10 P 110 A 920/5 LS 3073

RQV 300-1250 PA 549 RQV 300-1250 PA 549-1 comparkHD engine: BF 10 L 413 F 294 kW (400 PS)

1 - 10- 9 - 4 - 3 - 6 - 5 - 8 - 7 - 2 0 - 27-72 -99 -144-171-216-243-288-315° - 0,5° (- 0,75°)

0,5° (- 0,75°) / 2500 min

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Rotational speed	Control rod travel	Fuel delivery	Difference cm ² /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min 1	mm 2	cm ³ /100 strokes 3	100 strokes	mm 2	cm ³ /100 strokes 3	mm 6
1250	12,1+0,1	14,8 - 15,2	0,4(0,8)			
300	6,3-6,5	1,1 - 1,5	0,4(0,7)			
				j		
		ļ			}	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

... PA 549 + .. PA 549-1

Upper rated s	peed			Intermediate	rated sp	eed		Lower rated	speed		Sliding s	leeve travel
deflection of control	rev/min Control rod trave	travel	9	Degree of deflection of control	rev/min	Control ro travel	d ·	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	1
lever 1	mm 2	rev/min (3		lever 4	5	6	<u> </u>	7	8	9	10	11
max.	1340	15,2-17,	8	•	-	-		ca. 13	100	min. 8,0		0,5-0,8
ca. 66	11,1 4,0 1500	1290-130 1370-140 0 - 1,	Ю						1	'6,3 - 6,5 00=2,0mm		2,9-3,1 4,8-5,0 8,0
								3 a				

Torque control travel a =

mn

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load di Control-roi Test oil ten		Rotational-speed (20) limitation intermediate speed	Fuel deliv high idle s	ery characteristics (5e) peed (50)	Starting Idle switching		Torque- travel	control (5) Control rod
rev/min	cm³/1000 strokes	rev/min 40	rev/min 4	cm ³ /1000 strokes	rev/min 6	cm³/1000 strokes	rev/min 8	travel mm
LDA 1250	0,9 bar 148,0-152,0 (146,0-154,0)	1290-1300*	LDA 900	0,9 bar 143,0-147,0 (140,0-150.0)	100	130,0-150,0 / 13,0 ~ 13,2 mm RW	-	•
			LDA 500	0 bar 95,0-97,0 (92,0-100,0)				

Chucking values in brackets

* 1 mm less control rod travel than col. 2

Test at n =

500

rev/min decreasing pressure – in bar gauge pressure increasing

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PE10PLS3073	0,9		12,1 - 12,2
+PA 549 +PA 549-1		0	9,7 - 9,8
+ •••••		0,55	11,1 - 11,2
		0,47	9,9 - 10,1

Notes:

(1) when n =

rev/min and gauge pressure =

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 19,0 e

2. Edition

estoil-ISO 4113

PE 12 P 110 A 920 LS 3060 RQV 300-1250 PA 479 KR

supersede9 82

company: KHD

1 - 4 - 9 - 8 - 5 - 2 - 11 - 10 - 3 - 6 - 7 - 12 0 - 45 - 60 - 105 - 120 - 165 - 180 - 225 - 240 - 285 - 300 - 345° + 0,5° (+0,75°)

engine: BF 12 L 413 FC

386 kW - 2500 min

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(2.75-2.95)

mm (from BDC)

		370-2337				T
Rotational speed	Control rod travel	Fuel delivery	Difference cm ³ /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1250	11,7+0,1	14,7 - 15, 1	0,4 (0,8)			
300	6,7-6,9	1,6 - 2,2	0,7 (1,0)			
	1]				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed		Intermediate	rated sp	eed	Lower rated	speed	•	Sliding s	leeve travel
deflection c antrol	rev/min Control rod travel mm 2	Control rod travel mm rev/min (2a)	Degree of deflection of control lever	rev/min	Control rod travel mm 4	Degree of deflection of control lever	rev/min 8	Control rod travel mm 3	rev/min	mm.
max.	1270	15,2-17,8	-	-	-	ca. 13	100	min. 8,3	250	0,2-0,6
ca. 60	10,7 4,0 1550	1280-1290 1385-1415 0 - 1,0	i			350-500	300	6,7-6,9		3,4-3,7 5,3-5,5 8,3
						3				

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2		Rotational-speed 20 limitation intermediate speed	Fuel delivingh idle s	Fuel delivery characteristics(5a) high idle speed (5b)		fuel delivery 6	Torque- travel	control (5)
rev/min 1	crh³/1000 strokes	rev/min 49	rev/min 4	cm ³ /1000 strokes 5	rev/min	cm³/1000 strokes 7	rev/min 8	travel mm
LDA 1250	0,75 bar 147,0-151,0 (145,0-153,0)	1280-1290*	LDA 850 LDA 500	0,75 bar 122,0-126,0 (119,0-129,0) 0 bar 78,0-80,0) (74,0-84,0)	100	140,0-160,0	850	11,7+0, 11,0+0, 10,1+0,

Checking values in brackets

*1 mm less control rod travel than col. 2

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
,	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PE 12 PLS 3060 +PA 479 KR	0,35	0.75 0 0,22	10,1 - 10,3 10,4 - 10,5 9,0 - 9,2 9,6 - 9,8

Notes:

(1) when n =

rev/min and gauge pressure =

Testoil-ISO 4113

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Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD _
2. Edition

En_

PE 10 P 110 A 920/5 LS 3073 RQV 300-1150 PA 549

1-10-9 - 4- 3 - 6 - 5 - 8 - 7 - 2 0-27-72-99-144-171-216-243-288-315 ° -0,5 ° (-0,75 °) superseds 82 company: KHD engine: BF 10L 413 F

265 kW (360 PS) bei 2050 min -1 bzw. 259 kW (352 PS)

(Maxidyne)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2,75–2,95) mm: (from BDC)

	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm
800	11,6+0,1	13,8-14,0	0,4(0,8)			
300	6,9-7,1	1,8 - 2,4	0,4(0,7)	_		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed			Intermediate	rated sp	eed	Lower rated	speed	•	Slidina s	Sliding sleeve travel	
deflection		Control rod travel mm rev/min	(3) (3)	Degree of deflection of control lever	rev/min 5	Control rod travel mm 4	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 3 9	rev/min	1 mm 11	
max.	1220	15,2-1	17,8	-	-	-	ca.12		min.8,5 6,9-7,1	250 550		
ca. 64	9,7 4,0 1400	1190-12 1270-13 0 - 1	300					465-	525 = 2,0	1150		
							3					

Torque control travel a =

mп

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2)		Rotational-speed (20) limitation intermediate speed				Starting lidle switching		Torque- travel	control 5 Control rod
rev/min 1	cfh²/1000 strokes	rev/min 3	•	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min 8	travel mm
LDA 800	0,9 bar 138,0-140,0 (135,0-143,0)	1190-1200	*	LDA 500	0 bar 85,0-89,0 (82,0-92,0)	100	110,0-140,0	1025 875	10,7+0, 10,9+0, 11,4+0, 11,6+0,

Checking values in brackets

* 1 mm less control rod travel than col. 2

1.83

AS

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	diminution Control rod travel- difference mm (1) .
PE 10 PLS 3073 RQV PA 549	0,55	0,90 0 0,39	11,2-11,3 11,6-11,7 9,4-9,5 10,1-10,3

Notes:

(1) when n =

rev/min and gauge pressure =

Testoil-ISO 4113

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Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 RVI 8,8 d

3. | Edition

PES 6 P 120 A 320 RS 419 Z

RQV 250-1100 PA 540

supersed&O.81

company:RVI

engine: MIDR 06.20.3C 188 kW(256PS

1 - 5 - 3 - 6 - 2 - 4 je 60°

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

(2,75-2,85) Port closing at prestroke

		2,00-2,30	The state of the s			
Retational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control verve) mm
1100	9,5-9,6	20,2 - 20,6	0,5(0,9)			
250	4,4-4,6		0,8(1,2)			
		÷				
	<u> </u>		_		İ	j

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed		Intermedia	Intermediate rated speed			speed	Oli dina ala assa and		
deflection of control	rev/min Control rod travel mm 2	travel mm	Degrae of deflection of control lever		Control rod travel	Degree of deflection of control lever		Control rod travel	rev/min	mm
max.	1270	15,2-17	.8			ca.10	100 250	min. 6,0 4,4-4,6	500	0,8-1,0 3,5-3,6
ca.61	8,5 4,0 1350	1215-124	+5			280 - 40	0		800 1100	4,8 <u>-</u> 4,9 6,9

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-rod Test oil tem		intermediate speed	3	rery characteristics (5a)	Starting Idle switchin	_	Torque- travel	control 5
rev/min 1	cm³/1000 strokes . 2	rev/min 44 3	rev/min 4	cm ³ /1000 strokes 5	re:/min	cm ³ /1000 strokes	rev/min	travel mm
	0,7 bar 202,0-206,0 (199,0-209,0)	1140~1150*	LDA 110 ₀	0 bar 142,0-146,0 (139,0-149,0)				

Checking values in brackets

* 1 mm less control rod travel then col. 2

Testatn =

500

rev/min increasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PES 6 PRS 419Z	0,26		9,0 - 9,1
+ RQVPA 540		0,70	9,5 - 9,6
		0	7.4 - 7.5
		0,21	7,9 - 8,1

Notes.

(1) when n =

rev/min and gauge pressure =

Test Specifications Fuel Injection Pumps (A) and Governors

WPP 001/4 KHD 1g9

1. Edition:

En

PES 6 MW 100/720 RS 1013 RSV 325...1100 MW 8/310 komb. Nr.: 0 403 476 010 supersedes 5.81 company: KHD

BF 6 L 413 FR

DX 230 Tractor 147 KW bei 2200 min 1

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A: Fuel Injection Pump Settings 3,10 - 3,20 Port closing at prestroke (3,05 - 3,25) mm

 $_{\text{mm (from BDC)}}$ RW = 9,0 - 12,0 mm

Rotational speed	Control rod	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm 2	cm³/100 strokes	Cm ³ / 100 strokes 4	mm 2	cm ³ /100 strokes	mm 6
1100	11,8 ^{+0,1}	10,6 - 10,8	0,35(0,6)			
325 900 500	5,6-5,8 12,4+0,1 10,6+0,1		0,35(0,55) 0,5 (0,7) 0,35(0,6)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Uppe	er rated speed	rev/min	Intern	nediate rat	ed speed	(4)	Lowe	(3) To		
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min 3	4	5	6	Control- lever deflection in degrees 7	rev/min 8	Control rod travel mm	rev/min	Control rod travel mm
loose	800	0,3-1,0				ca. 18	325 100	5.2 min. 19	1100 900	11,8-11,9 12,4-12,5
ca 50	1155-11	150 = 10,8 185 = 4,0 0,3-1,7					325 550- 610	5,6-5,8 2,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Fu	III-load stop	6 Rotational- speed limitat	11.33	el delivery aractenstics	Starting f	uel delivery 5	idle stop	
Test oil te rev/min 1	cm ³ /1000 strokes 2	Note: changed to .) rev/min 3	rev/min	cm ³ /1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	Control rod travel mm
LDA 1100	0,55 bar 106,0-108,0 (104,0-110,0)	1140-1150*	LDA 900 LDA 500	0,55 bar 114,5-118,5 (112,5-120,5) 0 bar 82,5-84,5 (80,5-86,5)	100 - 325	min. 120 12,5-16,5 (10,0-19,0		5,7

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure increasing

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
RS 1013 +		0,4	11,9 - 12,0
MW 8/310		0,55	11,1 - 11,2
		·	
	•		
	·		
·	 - -		

Notes:

(1) when n =

rev/min and gauge pressure =

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DEE 7,6 a

1. Edition

En

PES 6 P 110 A 720 RS 361

RSV 400-1050 P2/478

supersedes John Deere company 6466 AR-06

engine: 167 kW (227 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2,70-2,90)

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm (2)	cm ³ /100 strokes	cm ³ / 100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1050	11,5 +0,1	15,0-15,2	0,4 (0,8)			
400	6,2-6,3	1,2-1,8	0,4 (0,8)			
				1		
					1	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control lever	r rated speed Control rod travel mm		Interme	diate rated	d speed	Control- lever deflection in degrees	Lower rev/min	rated speed Control rod travel mm	11 3 /	rque control Control rod travel mm
loose	800 X =	0,3-1,0	-	-	<u>-</u>	ca.20	400 100	5,7 min.19,0	1050 650	11,5-11,6 12,3-12,4
ća.44 2a	10,5 4,0 1280	1105-1115 1185-1215 0,3 -1,7					400 570-630 800	6,1-6,3 = 2,0 max. 1,0	500	8,4-8,5

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	emp. 40°C (104°F)	Rotational-speed limitat Rote:				Starting fuel delivery 5 4a Idle stop				
rev/min	cm³/1000 strokes	changed to) rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min	cm ³ /1000 strokes 7	rev/min 8	travel mm		
LDA 1050	0,65 bar 150,0-152,0 (147,0-155,0)	1105-1115*	LDA 650 LDA 500	0,66 bar 162,0-166,0 (159,0-169,0) 0 bar 74,0-80,0 (71,0-83,0)	100	155,0-175	,0 400	6,2		

Checking values in brackets

* 1 mm less control rod travel than col. 2

1.83

BOSCH

Geschaftsbereich KH. Kundendienst. Kfz-Ausrustung. c. 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PES 6 PRS 361	0,67		11,5-11,6
+RSVP2/478		0,36	9,8- 9,9

Notes:

(1) when n =

rev/min and gauge pressure =

PE10P110A920/5 LS 3073

R0300/1150PA535

supersede 82

company:BF10L413F

265kW (360 PS)₁

2050 min bzw. 259 kW (352 PS)

2300- min (Maxidyne)

1-10-9-4-3-6-5-8-7-2

0-27-72-99-144-171-216-243-288-315° ±0.5° (±0.75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm
800	11,6+0,1	13,8-14,0	0,4(0,8)			
300	6,9-7,	1,8-2,4	0,4(0,7)			
	L			L		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin PRG che	ck Control rod travel	Full-load s Setting po rev/min	•	-		Idle spec Setting p	Control red travel	Test spe	cifications 5 Control rod travel mm	Torque o	Control rod (3)
700 VH=	19,2-20,9 max.46°	700	20,0		1195-1205 1220-1250 0-1,0	300	7,0	100 300	min.8,5 6,9-7,1	800 1020	10,7-10,9 11,6-11,7 11,5-11,7 11,2-11,4

Torque-control travel
on flyweight assembly dimension a =

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

governor	delivery on control lever mp. 40°C (104°F)	Control rod stop 3a	Fuel delive	ery characteristics 36	Starting fi	tuel delivery
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min	cm ³ /1000 strokes:/ mm
LDA 800	0,9 bar 138,0-140,0 (135,0-143,0)	-	LDA 500	0 bar 85,0-89,0 (82,0-92,0)	100	115,0-140,0

Checking values in brackets

Test at n =

500

rev/min decreasing pressure – in bar gauge pressure

				······································
Pump/governor	Setting		Measurement	diminution Control rod travel- difference
	Gauge pressure =	bar	Gauge pressure = bar	mm (1)
PE10PLS3073 + PA535	0,55		0,90	11,2-11,3 11,6-11,7
			0	9,4-9,5
			0,39	10,1-10,3

Notes:

(1) when n =

rev/min and gauge pressure =

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 DAF 11,6 n 3

n

PE 6 P 110 A 320 RS 407-1

RQ 250/1100 PA 428/2 R

'supersedes

company: DAF

engine: DKTL 1160

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(2.75-2.95)

mm (from BDC) = RW 9.0 - 12.0 mm

Rotational speed rev/min 1	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
850	12,3+0,1	13.9-14.1	0,4 (0,8)			_
250	7,1-7,3	1,1-1,5	0,4 (0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin PRG che	~	Full-load s	-	-	cifications (4)	Idle spec	•		cifications (5)	Torque o	control (3)
rev/min	Control rod	rev/min	Central red travel rom 4	Control red travel	rev/min		Control red travel	rev/min	Control rod	rev/min 11	Control rod travel mm
600	15,6-16,4	600	16,0	11,3 4,0 1350	1145-1160 1200-1230 0 - 1,0		7,2	250	min. 7,3 7,1-7,3 385 = 2,0	850 1100	12,3+0,1 12,2+0,2
								1445	160 min-1		

Torque-control travel
on flyweight assembly dimension a =

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

governor	delivery on control lever mp. 40°C (104°F)	Control rod stop 3a	Fuel deliv	ery characteristics 3b	Starting fi Idle spee	uel delivery d (a) (a) (a)
rev/min	cm ³ /~1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	rat travel cm ³ /1000 strokes / mm 7
LDA 850	0,5 bar 139,0-141,0 (136,0-144,0)	-	LDA 600	0 bar 135,0-138,0 (132,0-141,0)	100	245,0-285,0 = 19,5-21,0 mm RW

Checking values in brackets

12.82

BOSCH

Test at n =

600

rev/min decreasing pressure – in bar gauge pressure

		, _	
Pump/governor ✔	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PE6PRS407-1	0,30		12,1 - 12,2
+ RQPA 428/2R		0,50	12,3 - 12,4
		0	12,0 - 12,1
•			

Notes:

(1) when n =

rev/min and gauge pressure =

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps 1 WPP 001/4 SCA 11,0 r 5 and Governors

PE 6 P 110 A 720 RS 3040

RQV 250-1000 PA 555

companyScania DS 11

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings
3,3 - 3,4
Port closing at prestroke (3,25-3,45) mm mm (from 800 RW 9,0 - 12,0 mm

						
Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve)
1	2	3	4	2	3	6
1000	13,6+0,1	17, 1 - 17,3	0,4(0,8)			
225	4,2-4,4	0,9 - 1,3	0,2(0,4)			
1						
				Ì		
	<u> </u>		_	L		

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

Upper rated	speed	•	Intermediate	rated sp	eed	Lower rated	speed	•	Sliding s	leeve travel
Degree of deflection of control	rev/min Control rod travel	Control rod ta	of control		Control rod travel	Degree of deflection of control		Control rod travel		0
lever	mm 2	rev/min (2	lever	rev/min 5	mm (4)	lever	rev/min B	mm (3)	rev/min 10	mm 11
 	1050	45 0 47 0	 	 	 	<u>'</u>		ļ		
max.	1050 1300	15,2-17,8 0 - 1,0	_	-	-	ca. 9		min.5,7 4,2-4,4	200 470	1,0-1,2 3,5-3,9
ca.60	12,6 4,0	1040-1050 1140-1170				250-355			730 1000	5,2-5,4 8,0
						39				

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2)					Fuel delivery characteristics 5a high ide speed 50		fuel delivery 6	Torque- travel	control 5
rev/min 1	cm ³ /1000 strokes .	rev/min	•	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm³/1000 strokes	rev/min	travel mm
LDA 1000	0,7 bar 171,0-173,0 (168,0-176,0)	1040-1050	*	LDA 600 LDA 500	0,7 bar 168,0-171,0 (165,0-174,0) 0 bar 127,0-131,0 (124,0-134,0)	100	220,0-270,0 20,0- 21,0 mm RW	•	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

-2-

Test at n ≠

500

rev/min decreasing pressure - in bar gauge pressure XXXXXXX

SCA 11,0 r 5

Pump/governor	Setting	Measurement	diminution Control rod 松純納XXX
	Gauge pressure = ba	r Gauge pressure = bar	MW (1)
RS 3040 +	0,7		13,6 - 13,7
PA 555	,	0,41	13,1 - 13,3
		0,26	12,3 - 12,4
		0	11,9 - 12,0

Notes:

(1) when n =

rev/min and gauge pressure =

9

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 12,0 f 4

<u>En</u>

PE6P120A320RS3071Z.

RQV 250-1025 PA 371

supersedes.

company: VOTVO

engine: TD 120 G/USA

243 kW (330 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2.55-2.75) mm (from BDC)

Rotational speed		Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ² /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	11,4+0	1 20,6-20,9	0,5(0,9)			
250	5,3-5,	2,2 - 2,6	0,3(0,6)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper ra	Upper rated speed				Intermediate rated speed				Lower rate	speed		Sliding sleeve travel	
Degree o		rev/min Control	Control rod	(•)	Degree of deflection		Control travel	rod	Degree of deflection	İ	Control rod travel		0
of contro	k	rod travel		<u>(2a)</u>	of control	rev/min	mm	(4)	of control	rev/min	mm (3)	rev/min	mm
1		2	3		4	5	6		7	8	9	10	11
max	·.	1100	15,2-17	7,8	-	-		-	ca. 12	100	min.7,0	200	0,7-0,9
ca.	. 4	10,4 4,0 1300		175							5,3-5,5 360=2,0	475 750 1025	2,8-3,1 4,8-5,1 7,2
									③	<u> </u>		<u> </u>	

Torque control travel a =

mit

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-roc Test oil ten		Rotational-speed (2b) limitation intermediate speed	Fuel deliv high idle s	ery characteristics (56) peed (50)	Starting tidle switching		Torque- travel	Control roc
rev/min	crit ³ /1000 strokes	rev/min 4	rev/min	cm³/1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	_
1	2	3	4	5	6	7	<u>-</u>	9
LDA 700	0,9 bar 206,0-209,0 (203,0-212,0		LDA 700	0 bar 176,0-180,0 (173,0-183,0		240,0-280,0 =RW 20,0 21,0 mm	•	-

Checking values in brackets

* 1 mm less control rod travel then col. 2

Test at n =

500

rev/min decreasing pressure - in ber gauge pressure

VOL 12,0 f 4

Pump/governor	Setting	Massurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PE6PRS3071Z + RQV PA 371	0,45	0,90 0 0,28	11,0-11,1 11,4-11,5 9,7- 9,8 10,1-10,3

Notes:

(1) when n =

rev/min and gauge pressure =

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 IHC 7,6 b 1
1. Edition

<u>En</u>

Nozzle-and-holder assembly 1 688 901 016 (207 + 3 bar)

PES 6 MW 100/320 RS 1107 RQV 350-1200 MW 43

0 40 3 446 135

Testoil-ISO 4113

supersedes _

company IHC - USA

engine: DTC 466 B

121,3 kW (165 PS)

All test specifications are valid for Boach Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	troke	4,00-4,10 (3 <u>95-415)</u>	mm (from BDC)	RW = 9.0	- 12 0 mm	
Rotational speed	Control rod	Fuel delivery	Difference	Control rod	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm 2	cm ³ /100 strokes 3	cm ³ / 100 strokes 4	mm 2	cm ³ /100 strokes 3	mm 6
800	11,1+0,	8,4 - 8,6	0,35(0,6)			_
350 1200	5,9-6, 11,1+0,		0,35(0,55 0,65(0,7)			
500	9,8+0,					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upps: rated s	peed				Lower rated	speed		Sliding sleeve travel		
deflection		Control mid travel mm rev/min 2a	Degree of deflection of control lever	rev/min	Control rod travel mm 4	Degree of deflection of control lever	rev/min 8	Control rod travel mm 3 9	rev/min	mm 11
max.	8,0 0 - 1	1355-1395 14£0	•	-	-	ca. 14	100 350	min.9,0 5,9-6,1		
ca.60,5	4,0	1365-1375			7	370-650 ③	1			

Torque control travel a =

-

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-ros Test oil ten	1 stoo	Rotational-speed (20) irritation intermediate speed			Starting Idle switchin		travel	Control Control ro
rev/min	cm³/1000 strokes	rev/min 49	rev/min	cm ³ /1000 strokes 5	rev/min 6	cm-V1000 strokes 7	rev/min	9
LDA 800	0,9 bar 84,0-86,0 (82,0-88,0)		LDA 1200 LDA 500	0,9 bar 86,5-90,5 (84,5-92,5) 0 bar 61,5-63,5 (59,5-65,5)	100 220-7	19.0-21,0 mm RW 140-180 280(210-290)		

Chucking values in brackets

* 1 mm less control rod travel then col. 2

-2-

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

IHC 7,6 b 1

300			
Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
RS 1107 RQV MW 43	0,3	0,9 0 0,13	10,8 - 10,9 11,1 - 11,2 9,8 - 9,9 10,1 -10,2

Notes

(1) when n =

rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Please note:

- Carry out pump adjustment only with overflow valve 1 417 413 040 and IH hose with throttle 1.57 mm diameter.
- Set locking device before testing position of sliding device.
- In unlocked condition do not operate at a speed higher than $n = 500 \text{ min}^{-1}$.
- Set lower idle speed at stop screw.
- Set shutoff stop 1.5 2.0 mm in front of the stop.

Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 IHC 7,5 a 1

1. Edition

PES 6 MW 100/320 RS 1103

RQV 350-1300 MW 43

0 403 446 131

Testoil-ISO 4113

supersedes company IHC

engine DT 466 B

154,5 kW (210 PS)

Nozzle-and-holder assembly 1 688 901 016 (207 + 3 bar)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres		,00-4,10 95-4 15)	mm (from BOC) RW = 9.0 - 12.0 mm						
Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery , cm ³ /100 strokes 3	Spring pre-tensioning (torque-contro! valve) mm 6			
900	11,9+0,1	10,3 - 10,5	0,35(0,6			_			
350	6,0-6,2	1,6 - 2,0	0,35(0,5)					
1300	11,9+0,1		0,65(0,7						
500	9,6+0,1								

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated	speed		Intermediate	rated sp	eed	Lower rated	speed	•	Sliding s	leeve travel
Degree of deflection	rev/min Control	Control rod travel	Degree of deflection		Control rod	Degree of deflection		Control rod travel		\odot
of control	rod trave	_	of control	rev/min	mm (4)	of control	rev/min	mm (3)	rev/min	നന
1	2	3	4	5	6	7	8	9	10	11
max.	8,0	1440-1505	-	-	-	ca. 14	100	min.9,0	!	
	0 - 1	1600					350	¹ 6,0-6,2		
ca.62,			T		:	70-650				,
	4,0	1475-1485				③				

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control roe		Rotational-speed (2b) limitation intermediate speed		very characteristics(5a)	Starting Idle switching		Torque- travel	control 5
rev/min	cfh³/1000 strokes	rev/min 4	rev/min	cm ³ /1000 strokes]	cm ³ /1000 strokes	rev/min 8	travel mm
LDA 900	0,9 bar 103,0-105,0 (101,0-107,0)		LDA 1300 LDA 500	0,9 bar 107,0-111,0 (105,0-113,0) 0 bar 63,5-65,5 (61,5-67,5)		19 - 21 mm RW 140 - 180 280(210-290)		

Checking values in brackets

* 1 mm less control rod travel then col 2

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

IHC 7,6 a 1

-2-

Pump/governor	Setting	Measurement	diminution Control rod travet- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
RS 1103 + RQV MW 43	0,51	0,9 0 0,28	11,3 - 11,4 11,9 - 12,0 9,6 - 9,7 10,4 - 10,5

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Please note:

- Carry out pump adjustment only with overflow valve 1 417 413 040 and IH hose with throttle 1.57 mm diameter.
- Set locking device before testing position of sliding device.
- In unlocked condition do not operate at a speed higher than $n = 500 \text{ min}^{-1}$.
- Set lower idle speed at stop screw.
- Set shutoff stop 1.5 2.0 mm in front of the stop.

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 IHC 7,6 C 1. Edition

PES 6 MW 100/320 RS 1103 RQV 350-1300 MW 43-1 G 403 446 132 supersedes_

company: IHC-USA

143,4 kW (195 PS)

Nozzle-and-holder assembly 1 688 901 016 (207 + 3 bar)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	stroke	(3.95-4.15)	mm (from BDC)	RW = 9	0-12,0 mm	
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
900	12,9+0,1	9,55-9,75	0,35(0,6)			
350	5,7-5,8	1,6 - 2,0	0,35(0,55)		
1300	10,9+0,1		0 65 (0 7)			
500	9,4-9,4		0,65(0,7)	1		
					I	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed		Intermediate	rated sp	bed	Lower rated	speed	Sliding sleeve travel		
	rev/min Control rod travel mm 2		Degree of deflection of control lever	rev/min 5	Control rod travel mm 4	Degree of deflection of control lever	rev/min 8	Control rod travel mm 3 9	rev/min	mm 11
max.	8,0 0-1	1355-1395 1500	-	-	-	ca. 13	1	min. 9,0 5,8-6,0		
ca.61,5		1457-1467			360-700	3				

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ter		Rotational-speed 20 limitation intermediate speed	Fuel deliningh idle :	rery characteristics (Se peed (Se)	Starting Idle switchii	. 0	Torque- travel	control 5
rev/min	cfh³/1000 strokes	rev/min 44	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	travei mm
1	2	3	4	5	6	7	8	9
LDA 900	0,9 bar 95,5-97,5 (93,5-99,5)		LDA 1300 LDA 500	(94,5-102,5) 0 bar 63,5-65,5	100 220-2	19-21 mm RW 140-180 80 (210-290)		

Checking values in brackets

* 1 mm less control rod travel than col. 2

-2-

500 Pump/governor	Setting	Measurement	diminution Control rod travel-
	Gauge pressure = bar	Gauge pressure = bar	difference mm (1) .
RS 1103 +	0,4		10,5 - 10,6
RQVMW 43-1		0,9	10,9 - 11,0
		0	9,4 - 9,5
		0,19	9,8 - 9,9

Notes. (1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Please note:

- Carry out pump adjustment only with overflow valve 1 417 413 040 and IH hose with throttle 1.57 mm diameter.
- Set locking device before testing position of sliding device.
- In unlocked condition do not operate at a speed higher than $n = 500 \text{ min}^{-1}$.
- Set lower idle speed at stop screw.
- Set shutoff stop 1.5 2.0 mm in front of the stop.

Test Specifications Fuel injection Pumps 1 and Governors

WPP 001/4 IHC 7,6 e

Edition

PES 6 MW 100/320 RS 1108 ROV 350-1200 MW 43-3 0 403 446 137

Testoil-ISO 4113

supersedes companyIHC-USA engine: DT 466 B

Nozzle-and-holder assembly 1 688 901 016 (207 + 3 bar) 132,4 kW (180 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings 3 00-3 10

Port closing at pres	troke	(2.95-3.15)	mm (from BDC)	RW=9.0-	12.0 mm	
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
800	11,5+0,	9,05-9,25	0,35(0,6)			
350	6,2-6,	1,6-2,0	0,35(0,55)		
1200	11,5+0,	1	0,65(0,7)			
500	10,0+91					
		<u> </u>		L	<u> </u>	

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

Upper rated s	Upper rated speed Intermediate rated speed				Lower rated	speed	•	Sliding sleeve travel		
deflection	rev/min Control rod travel mm 2	Oontrol rod travel mm rev/min 2s	Degree of deflection of control lever	rev/min 5	Control rod travel mm 4	Degree of deflection of control lever	rev/min 8	Control rod travel	rev/min	(1) mm: 11
max.	8,0 0,1	1360-1400 1450	-	-	-	ca. 17	1	min. 9,0 6,2-6,3		
ca.60,5		1380-1390				370 - 650				

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2)		Rotational-speed 2b limitation intermediate speed		rery characteristics (5e peed (50)	Starting Idle switchir		Torque- travel	control (5) Control rod
rev/min	cm³/1000 strokes	rev/min 4	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes .	rev/min	mm mm
1	2	3	4	5	6	7	8	9
LDA 800	0,9 bar 90,5-92,5 (88,5-94,5		LDA 1200 LDA 500	0,9 bar 93,0-97,0 (91,0-99,0) 0 bar 60,0-62,0 (58,0-64,0)	100 220-2	19-21 mm RW 140,0-180,0		

Checking values in brackets

* 1 mm less control rod travel than col. 2

B7

rev/min decreasing pressure – in bar gauge pressure Test at n = 500 IHC 7,6 e Measurement diminution Pump/governor Setting Control rod traveldifference bar mm (1) Gauge pressure = Gauge pressure = RS 1108 + 11,1 - 11,2 11,5 - 11,6 0,42 RQV.. MW 43-3 0,9 10,0 - 10,1 10,3 - 10,4 0 0,19

Notes:

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

-2-

Please note:

- Carry out pump adjustment only with overflow valve 1 417 413 040 and IH hose with throttle 1.57 mm diameter.
- Set locking device before testing position of sliding device.
- In unlocked condition do not operate at a speed higher than $n = 500 \text{ min}^{-1}$.
- Set lower idle speed at stop screw.
- Set shutoff stop 1.5 2.0 mm in front of the stop.

Test Specifications Fuel Injection Pumps 1 WPP 001/4 IHC 7.6. f and Governors

1. Edition

PES 6 MW 100/320 RS 1108 RQV 350-1300 MW 43-4 0 403 446 138

Testoil-ISO 4113

supersedes

company: IHC

engine. DT 466 B

154,5 kW (210 PS)

Nozzle-and-holder assembly 1 688 901 016 (207 + 3 bar)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres		3,00-3,10 2 95-3 15)	mm (from BDC)	V = 9.0-1	2 (i mm	
Rotational speed	Control rod travel	Fuel delivery	Difference cm ³ /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
900	12,6-0,1	10,7-10,9	0,35(0,6)			_
350	6,5-6,6	1,6-2,0	0,35(0,55 0,65(0,7)	}		
1300	12,6+0,1		0,65(0,7)			
500	9,6+0,1					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated	Upper rated speed			rated sp	eed	Lower rated	speed		Slidings	leeve travel
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min 2a	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel mm 3	rev/min	1) mm
max.	8,0 0-1	1440-1505 15 ⁸ 0	-	-	*	1	100	min.9,0 6,1-6,2		
ca.61,	4,0	1500-1510				370-650 ③				

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2		intermediate speed	high idle s	rery characteristics (5e)	Starting Idle switchin	. •	Torque- travel	control (5)
rev/min	cfh³/1000 strokes	rev/min 4e	rev/min	cm³/1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	9
LDA 900	0,9 bar 107,0-109,0 (105,0-111,0)		LDA 1300 LDA 500	0,9 bar 112,5-116,5 (110,5-118,5) 0 bar 53,5-55,5 (51,5-57,5)		19-21 mm RW 140-180 80(210-290)		

1 mm less control rod travel than col. 2 12.82

restatn = 500	tatn = 500 rev/min decreasing pressure - in bar gauge pressure increasing IHC 7									
Pump/governor	Setting	Measurement	d:minution Control rod travel- difference							
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .							
RS 1108 + RQV MW 43-4	0,57	0,9 0 0,27	11,9-12,0 12,6-12,7 9,69,7 10,4-10,5							

Notes:

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Please note:

- Carry out pump adjustment only with overflow valve 1 417 413 040 and IH hose with throttle 1.57 mm diameter.
- Set locking device before testing position of sliding device.
- In unlocked condition do not operate at a speed higher than $n = 500 \text{ min}^{-1}$.
- Set lower idle speed at stop screw.
- Set shutoff stop 1.5 2.0 mm in front of the stop.

Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 IHC 7,6a

1. Edition

PES 6 MW 100/320 RS 1107 RQV 350-1200 MW 43-2 0 403 446 136 supersedes

company: IHC-USA

engine: DT 466 B 132,4 kW (180 PS)

Nozzle-and-holder assembly 1 688 901 016 (207 + 3 bar)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
fev/min	mm 2	cm³/100 strokes 3	cm ³ / 100 strokes 4	mm 2	cm³/100 strokes 3	mm 6
800	11,8+0,1	9,45-9,65	0,35 (0,6			
350	5,9-6,1	1,6 - 2,0	0,35 (0,5	\$)		
1200 500	11,8-11, 10,4-10,		0,65 (0,7			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	Upper rated speed			Intermediate	rated sp	ed		Lower rated	speed	•		Sliding sl	eeve travel
	rev/min Control rod travel mm 2	travel		Degree of deflection of control lever	rev/min	Control travel mm	rod	Degree of deflection of control lever	rev/min 8	Control root travel mm	d 3	rev/min	mm 11
max.	8,0 0-1	1355-139 1500	5	•	-	_		ca.15	100	min.9, 5,9-6,			
ca.61,5	4,0	1375-138	5					370-650					

Torque control travel a =

നന

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2		Rotational-speed 20 limitation intermediate speed	Fuel delivingh idle s	rery characteristics (5a)	Starting Idle switching	•	Torque- travel	e-control 5	
rev/min	cm³/1000 strokes	rev/min 49	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min 8	travel mm	
LDA 800	0,9 bar 94,5-96,5 (92,5-98,5)		LDA 1200 LDA 500	(94,0-102,0) 0 bar 70,0-72,0	100	19,0-21,0 mm RW 140-180 280 (210-290)			

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test at n =

500

rev/min decreasing pressure – in bar gauge pressure

- 000			
Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
RS 1107			
RQVMW 43-2	0,39		11,5 - 11,6
		0	10,4 - 10,5
		0,9	11,8 - 11,9
		0,17	10,7 - 10,8
		a.	

Notes:

(1) when n =

rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Please note:

- Carry out pump adjustment only with overflow valve 1 417 413 040 and IH hose with throttle 1.57 mm diameter.
- Set locking device before testing position of sliding device.
- In unlocked condition do not operate at a speed higher than $n = 500 \text{ min}^{-1}$.
- Set lower idle speed at stop screw.
- Set shutoff stop 1.5 2.0 mm in front of the stop.

Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 IHC 7,6 g

en. Edition

PES 6 MW 100/320 RS 1108 RQV 350-1200 MW 43-5 0 403 446 139

Testoil-ISO 4113

supersedes company: IHC

engine: DT 466 B

121,4 kW (165 PS)

Nozzle-and-holder assembly 1 688 901 016 (207 + 3 bar)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings 3,00-3,10

Port closing at pres	stroke	2.95-3.15)	mm (from BDC)	RW = 9.0 - 12.0 mm					
Rotational speed	Control rod travel	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)			
1	2	3	4	2	3	6			
800	10,6+0,1	8,5-8,7	0,35(0,6						
350 1200	10,6+0,		0,35(0,5						
500	9,2-9,	3	0,00(0,1						

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed		Intermediat	e rated sp	eed	Lower rated	speed		Sliding s	leeve travel
deflection of control	rev/min Control rod travel mm	Control rod travel mm rev/min 2	of control	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	mm ①
1	2	3	4	5	6	7	8	9	10	11
max.	8,0	1360-140	- 1	-	-	ca.14	100	min.9,0		
	0-1	1460					350	5,8-5,9		
ca.58,5	4,0	1360-137	0			360-640				
		! !	1			②				

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-ros Test oil ten		Rotational-speed (20) Fuel deliver limitation intermediate speed			Starting Idle switchin		Torque- travel	control 5 Control rod
rev/min 1	cm ³ /1000 strokes	rev/min 40	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ² /1000 strokes 7	rev/min 8	travel mm
LDA 800	0,9 bar 85,0-87,0 (83,0-89,0)		LDA 1200 LDA 500	0,9 bar 90,5-94,5 (88,5-96,5) 0 bar 59,0-61,0 (57,0-63,0)		19-21 mm RW 140-180 280 (210-290)		

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

Test at n =

500

rev/min decreasing pressure – in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
RS 1108 RQV MW 43-5	0,42		10,2 - 10,3
		0,9	10,6 - 10,7
		0	9,2 - 9,3
		0,18	9,5 - 9,6
	·		

Notes:

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Please note:

- Carry out pump adjustment only with overflow valve 1 417 413 040 and IH hose with throttle 1.57 mm diameter.
- Set locking device before testing position of sliding device.
- In unlocked condition do not operate at a speed higher than $n = 500 \text{ min}^{-1}$.
- Set lower idle speed at stop screw.
- Set shutoff stop 1.5 2.0 mm in front of the stop.

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MB 3,0 p 2. Edition

En

0 400 075 993

PES 5 M 55 C 320 RS 108

RSF 350/2300 M 16

Komb. Nr. 0 400 075 994 | Sales model

supersed \$.81

company Daimler Benz

OM 617

65 KW (88 PS)

1-2 - 4 - 5 -3

ATT SEP 14 TE at 6 16 at 2 88 to 10 r Bosch Fuel One 2 50 Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,20-2,30 (2,15-2,35)

mm (from BDC)

20 mm

Control rod travel

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (compensating valve)
rev/min	mm 2	cm³/100 strokes	cm³/100 strokes	mm 2	cm ³ /100 strokes	mm 6
1000	13,9+0,1	3,9-4,0	,25(0,3)			_
350 1800 2200	6,5-6,7	0,6-0,7	0,1(0,15) 0,25(0,3) 0,25(0,3)			

Set uniform delivery according to the values in

Checking values in brackets

B. Governor Settings

Lower rated spe Degree of deflection of control lever	Control rod travel	Rotational speed rev/min	Upper rated spo Degree of deflection of control lever		Rotational speed rev/min	Variations in co	ntrol rod trav Rotational speed rev/min 8	Control rod travel mm
9-13 (1) (2) (3) (4) (5)	min.10, max.10, 6,5-6,7 **	p 300	50 (8) (9) (1)	0-1,0		(12) (13) (14) (6)	1 1000	min.20,3 13,5-13,7 13,9-14,0

C. Settings for Fuel Injection Pump with Governor Mounted

Full-load de		Full-load speed (8a) regulation	Variations delivery	in fuel	Starting full	iel delivery	Difference
Test oil ten	np. 40°C (104°F) I	rev/min	rev/min	(18) cm³/1000 strokes 5	rev/min 6		cm ³ /1000 strokes
2200	39,5-41,5 (38,5-42,5)	2500 * RW 9,1-9,5	1800	39,0-41,0 (38,0-42,0) 39,0-40,0 (38,0-41,0)	100 350 2500	6,0-7,0 (5,5-9,0)	6,0 (2a) 1,0 1,5 (15) 2,5 see 3,0 point 8a

Checking values in brackets

பே நிர இத்தாராவ் rod travel than in Column 2

- 1. ** Set the idle auxiliary spring at $n = 385 \text{ min}^{-1}$ so that the control-rod travel is exceeded by 0.1 0.2 mm.
- 2. Setting the idle control-lever position:
 At 1000 min⁻¹, control rod travel 1.9 2.0 mm
- 3. Check the idle auxiliary spring shutoff

Control-lever position 47°. After change-over point up to 550 min⁻¹ no change in control-rod travel. Control-lever position 30°. Speed range 350 min⁻¹ - 450 min⁻¹

4. Check the pneumatic shutoff box

Control lever at idle stop. At $n = 375 \text{ min}^{-1}$ and pu = 450 mbar (vacuum) (338 mmHg) the control rod must return quickly to control-rod travel = 0 mm.

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MB 3.0 o

2. Edition

PES 5 M 55 c 320 RS 108

RSF 350/2300 M 15

supersedes 1.81

company Daimler-Benz

OM 617

Komb.Nr. 0 400 075 995 Sales model

0 400 075 992

1-2 -4 -5 -3 All test specifications for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,20-2,30 (2,15-2,35)

mm (from BDC)

Control rod travel

20 mm

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (compensating valve)
rev/min	mm	cm ³ /100 strokes	cm³/100 strokes	mm	cm³/100 strokes	mm
1	2	3	4	2	3	6
1000	13,9+0,	3,9-4,0	0,25(0,3)			
350 1800 2200	6,5-6,	7 0,6-0,7	0,1(0,15) 0,25(0,3) 0,25(0,3)			

Set uniform delivery according to the values in

Checking values in brackets

B. Governor Settings

Lower rated sp	eed		Upper rated sp	eed		Variations in co	Variations in control rod travel			
Degree of deflection of control	Control rod travel	Rotational speed	Degree of deflection of control	Control rod travel	Rotational speed		Rotational speed	Control rod travel		
lever	mm	rev/min	lever	mm	teA/wiu	1	rev/min	mm		
1	2	3	4	5	6	7	8	9		
9-13 (2)	min.10, max.10, 6,5-6,7	0 300	50 (7) (8) (9)	13,0-13	5 2500	(12) (13) (14)	100 1800 1000	min.20,3 13,5-13,7 13,9-14,0		
(4)	2,5	720-820	(1)		2950	6	Switching p	oint		

C. Settings for Fuel Injection Pump with Governor Mounted

Full-load de	elivery (19) np 40°C (104°F)	Full-load speed (8a) regulation	Variations delivery	in fuel (17)	Starting fi idle	uel delivery	Difference
rev/min 1	cm²/1000 strokes	rev/min 3	rev/min	cm ³ /1000 strokes	rev/min 6	cm ³ /1000 strokes 7	cm ³ /1000 strokes 8
2200	39,5-41,5 (38,5-42,5)	2500* RW=9,1-9,5	1800 1000	(38,0-42,0)	350	min. 53,0 6,0-7,0 (5,5-9,0) 23,0-27,0 (22,0-28,0)	1,0 (1,5) see (15) 2,5 point (16)

Checking values in brackets

Ca 1 mm less control rod travel than in Column 2

- 1. ** Set the idle auxiliary spring at n = 385 min⁻¹ so that the control-rod travel is exceeded by 0.1 0.2 mm.
- 2. Setting the idle control-lever position:

 At 1000 min⁻¹, control rod travel 1.9 2.0 mm
- 3. Check the idle auxiliary spring shutoff

 Control-lever position 47°. After change-over point up to 550 min⁻¹ no change in control-rod travel. Control-lever position 30°. Speed range 350 min⁻¹ 450 min⁻¹
- 4. Check the pneumatic shutoff box

Control lever at idle stop. At $n = 375 \text{ min}^{-1}$ and pu = 450 mbar (vacuum) (338 mmHg) the control rod must return quickly to control-rod travel = 0 mm.

Test Specifications **Fuel Injection Pumps** and Governors

WPP 001/4 MB 2,0 h

2. Edition

En

PES 4 M 50 C 320 RS 103

RSF 375/2250 M 20

Komb. Nr. 0 400 074 976, 1-3-4-2=0 - 90-180-270 -0,5 (0,75)°

supersed 10.81

companyDaimler Benz engine OM 615

42,7 kW (58 PS)

Sales model 0 400 074 975

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

1,70 - 1,80 (1,65 - 1,85)

mm (from BDC)

20mm

Control rod travel

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (compensating valve)
rev/min	mm	cm ³ /100 strokes	cm ³ /100 strokes	mm	cm ³ /100 strokes	നന
1	2	3	4	2	3	6
1000	11,9+0,1	2,95-3,05	0,25(0,3)			
375	6,9-7,1	0,65-0,75	0,10(0,15)			

Set uniform delivery according to the values in

Checking values in brackets

B. Governor Settings

Lower rated sp	eed		Upper rated	speed			Variations in co	ntrol rod trav	el
Degree of deflection of control	Control rod travel	Rotational speed	Degree of deflection of control	Cont		Rotational speed		Rotational speed	Control rod travel
lever	mm	rev/min	lever	mm	1	rev/min		rev/min	mm
1	2	3	4	5		6	7	8	9
13-17(1) (2) (3)	min.12, 6,9-7,1 **			8, 9 0,	2-11, 1-8,5 0-1,0	2500	(12) (13) (14)	1900	min. 20,3 11,4-11,6 11,9-12,0
(4) (5)	2,5	720-820	1	1)	-	-	6	Switching p	oint

C. Settings for Fuel Injection Pump with Governor Mounted

Full-load de	elivery (19)	1, O	Variations delivery		Starting fo	uel delivery	0.44		
Test on ten	np 40°C (104°F) I		'	(18)			Difference		
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	cm ³ /1000 strokes		
1	2	3	4	5	6	7	8		
2200	31,5-33,5 (30,5-34,5)	2500* RW 8,1-8,5	1900 1000	32,0-34,0 (31,0-35,0) 29,5-30,5 (28,5-31,5)	100 375 2500	min. 55,0 6,5-7,5 (5,5-9,0) 17,0-21,0 (16,0-22,0)	6,0 1,0 1,5 2,5 see 15 3,0 point 8a		

Checking values in brackets

1 gamess control rod travel than in Column 2

- 1. ** Set the idle auxiliary spring at n = 400 min⁻¹ so that the control-rod travel is exceeded by 0.1 0.2 mm.
- 2. Setting the idle control-lever position:
 At 1000 min⁻¹, control rod travel 1.9 2.0 mm
- 3. Check the idle auxiliary spring shutoff

 Control-lever position 47°. After change-over point up to 550 min⁻¹ no change in control-rod travel. Control-lever position 30°. Speed range 350 min⁻¹ 450 min⁻¹
- 4. Check the pneumatic shutoff box

Control lever at idle stop. At $n = 375 \text{ min}^{-1}$ and pu = 450 mbar (vacuum) (338 mmHg) the control rod must return quickly to control-rod travel = 0 mm.

5

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 MB 2,4 m 3. Edition

En

PES 4 M 55 c 320 RS 107 RSF 375/2250 M 17 supersede9.81

company: Daimler-Benz

engine: OM 616

Komb.Nr. 0 400 074 982 : Sales model

0 400 074 980 _ 53 kW (72 PS)

1-3 - 4 - 2 Il less specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,20-2,30 (2,15-2,35)

mm (from BDC)

20 mm Cor

Control rod travel

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (compensating valve)
rev/min	mm	cm ³ /100 strokes	cm ³ /100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1000	13,9 ⁺⁰ ,	3,9-4,0	0,25(0,3)			
375 1800 2200	6,5-6,	7 0,6-0,7	0,1(0,15) 0,25(0,3) 0,25(0,3)			

Set uniform delivery according to the values in

Checking values in brackets

B. Governor Settings

Lower rated sp	eed		Upper rated spe	ed		Variations in co	ntrol rod travi	el
Degree of deflection of control	Control rod travel			Control rod travet	Rotational speed	l .	Rotational speed	Control rod travel
lever	mm	rev/min	lever	mm	rev/min		rev/min	mm
1	2	3	4	5	6	7	8	9
9-13 ()	min.11, max.11, 6,5-6,7	0 300	50 (7)	0-1.0		(12) (13) (14)	100 1800 1000	min.20,3 13,3-13,5 13,9-14,0
3	2,5	720-820	Ö	_	-	6	Switching po	int

C. Settings for Fuel Injection Pump with Governor Mounted

•
Difference
cm ³ /1000 strokes
8
6,0 (2a)
1,0
1,5 see (15) 2,5 point 8a 3,0
)

Checking values in brackets

Ca ी न्या विश्वप्रदेशप्राण rod travel than in Column 2

- 1. ** Set the idle auxiliary spring at n = 400 min⁻¹ so that the control-rod travel is exceeded by 0.1 0.2 mm.
- 2. Setting the idle control-lever position:

 At 1000 min⁻¹, control rod travel 1.9 2.0 mm
- Control-lever position 47°. After change-over point up to 550 min⁻¹ no change in control-rod travel. Control-lever position 30°. Speed range 350 min⁻¹ 450 min⁻¹
- 4. Check the pneumatic shutoff box

Control lever at idle stop. At $n = 375 \text{ min}^{-1}$ and pu = 450 mbar (vacuum)(338 mmHg) the control rod must return quickly to control-rod travel = 0 mm.

Test Specifications **Fuel Injection Pumps** and Governors

WPP 001/4 MB 2,4 L 3. Edition

En

PES 4 M 55 C 320 RS 107

RSF 375/2250 M 18

Komb. Nr. 0 400 074 981 : Sales model

0 400 074 979

supersedes9.81

company Daimler Benz

OM 616

53 kW (72 PS)

1-3-4-2

0-90-180-270
All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,20-2,30 (2,15-2,35)

mm (from BDC)

Control rod travel

20mm

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (compensating valve
rev/min	mm	cm ³ /100 strokes	cm³/100 strokes	mm	cm ³ /100 strokes	mm -
1	2	3	4	2	3	6
1000	13.9+0,	3,9-4,0	0,25(0,30)			
375 1800 2200	6,5-6,7		0,1(0,15 0,25(0,3) 0,25(0,3)			

Set uniform delivery according to the values in

Checking values in brackets

B. Governor Settings

Lower rated sp	eed		Upper rated st	peed		Variations in control rod travel		
Degree of deflection of control	Control rod travel	Rotational speed	Degree of deflection of control	Control rod travel	Rotational speed		Rotational speed	Control rod travel
lever	шш	rev/min	lever	mm	rev/min		rev/min	mm
1	2	3	4	5	6	7	8	9
9-13 ① ② ③ ④ ⑤	min.11, max.11, 6,5-6,7	0 300	50 (7)	0 - 1,0	2500	(12) (13) (14) (6)	100 1800 1000 Switching p	min.20,3 13,3-13,5 13,9-14,0

C. Settings for Fuel Injection Pump with Governor Mounted

Full-load d	elivery (19)	Full-load speed (8a)	Variations delivery	in fuel	Starting for	uel delivery	
Test oil ter	np 40°C (104°F)			1 1 8			Difference
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	cm ³ /1000 strokes
1	2	3	4	5	6	7	8
2200	39,5-41,5 (38,5-42,5)	2500* RW 8,7-9,1	1800	(38,0-42,0)	375 2500	min. 53,0 6,0-7,0 (5,5-9,0) 23,0-27,0 (22,0-28,0)	1,0 1,5 2,5 see (15) 3,0 point 86

Checking values in brackets

Ca. 4 mm less control rod travel than in Column 2

- 1. ** Set the idle auxiliary spring at $n = 400 \text{ min}^{-1}$ so that the control-rod travel is exceeded by 0.1 - 0.2 mm.
- Setting the idle control-lever position: 2. At 1000 \min^{-1} , control rod travel 1.9 - 2.0 \min
- 3. Check the idle auxiliary spring shutoff

Control-lever position 47°. After change-over point up to $550~\rm{min}^{-1}$ no change in control-rod travel. Control-lever position 30°. Speed range 350 min⁻¹ - 450 min⁻¹

Check the pneumatic shutoff box 4.

> Control lever at idle stop. At $n = 375 \text{ min}^{-1}$ and pu = 450 mbar (vacuum) (338 mmHg) the control rod must return quickly to control-rod travel = 0 mm.

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps 1 wpp 001/4 PER 10,0 o and Governors 1. Edition

PES 8 MW 100/720 RS 1021 0 403 448 115

RQV 275-1125 MW 40

supersedes[©]

Perkins company: **V8.640 GR**

148 kW (201 PS)

1 - 8 - 7 - 5 - 4 - 3 - 6 - 2 0 - 45 - 90 - 135 - 180 - 225 - 270 - 315 - 0,50 (0,75)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings 3,00 - 3,10

Port closing at pres	troke (2.95 - 3.15)	mm (from BDC)	RW = 9.0	- 12.0 mm	
Rotational speed	Control rod	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min 1	mm 2	cm ³ /100 strokes 3	cm ³ / 100 strokes 4	mm 2	cm ³ /100 strokes 3	mm 6
800	10,7+0,1	9,05 - 9,25	0,35(0,6)			
275	6,2-6,4	1,35 - 1,75	0,35(0,55			

Adjust the fuel delivery from each outlet according to the values

B. Governor Settings

Upper rated s	peed		Ī	Intermediate	rated spi	ed	Lower rated	speed	1 .	Sliding s	leeve travel
deflection of control	rev/min Control rod travel mm	travel		Degree of deflection of control lever	rev/min	Control rodi travel mm 4	Degree of deflection of control lever	rev/min	Control rod travel mm 3	rev/min	
1	2	3	\subseteq	4	5	6	7	8	9	10	
max.	1190	15,2-17,	8	-	-	-	ca. 11	275	6,2-6,4		
	1350	0 - 1,	,0					100	min. 7,7		
ca. 62	9,7	1175-118	35				300-500				į
e L	4,0	1220-125	50]		39				

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2)		Rotational-speed 2b limitation intermediate speed			Starting Idle switchir		Torque- travel	Control rod
rev/min	cm³/1000 strokes .	rev/min 4a	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	9
800	90,5 - 92,5 (88,5 - 94,5)	ł			100	min. 140,0		
					100-	195 (80-215)		

Chucking values in brackets

1 mm less control rod travel then col. 2

Port closing and TDC markings:

Comb. - No. ... 115

Ocamshaft between port-closing and TDC at control-rod travel 9,0 - 12,0 mm 15°

Test Specifications Fuel Injection Pumps and Governors

WPP 00 1/4 MB 3,0 m

2. Edition

PES 5 MW 55/320 RS 16 RW 375/2200 MW 28-1 0 403 245 013 0 403 245 014 - Sales model supersedes 2,80

company Daimler Benz

engine

OM 617 A

Caution: Read important information on back before beginning testing.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,10-2,20

mm (from BDC)

Control rod travel 21mm

Without ALDA

(2.05-2.25)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (compensating valve)
rev/min	mm	cm ³ /100 strokes	cm ³ /100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1000	13,5+0,	1 5,15 - 5,25	0,25(0,3)			
375	5,2-5,	3 0,6 - 0,7	0,10(0,15)			
1600			0,25(0,3)			
2180			0,25(0,3)			

Set uniform delivery according to the values in [

Checking values in brackets

B. Governor Settings

Without ALDA

Lower rated sp	eed		Upper rated spe	eed		Variations in co	ntrol rod trave	el
Degree of deflection of control lever	Control rod travel	Rotational speed	Degree of deflection of control lever	Control rod travel	Rotational speed		Rotational speed rev/min	Control rod travel
1	2	3	4	5	6	7	8	9
27-31 (2)	min.11 max.11 5,2-5,3	100 320 375	69 ⁽⁷⁾ (8)	12,1-12	2300-2320	(13)	00¢;	20,5-21,5
(4) (5)	-	-	(1)	4,0 0,0-1,0 -	2620-2720 2950		1000 Switching po 260-31(13,5-13,6 0(240-330)

C. Settings for Fuel Injection Pump with Governor Mounted Without ALDA

Full-load o	delivery (19)	Full-load speed 8a regulation	Variations delivery		Starting f	uel delivery	
Test on te	mp 40°C (104°F)			🔞		-	Difference
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	cm ³ /1000 strokes
1	2	3	4	5	6	7	8
2180	50,0-52,0 (49,0-53,0)	2300-2320* (2290-2330)	1600	51,5-53,0 (50,5-54,5)	100	min. 55,0	6,0
		(Caro acco	1000	51,5-52,5 (50,5-53,5)	375	6,0 - 7,0 (5,5 - 9,5)	1,0 (1,5)
i	İ				2550	24,0-30,0	2,5
						(23,0-31,0)	(3,0)

Checking values in brackets

1 mm less control rod travel than in Column 2

<u>Testing</u>	with ALDA			MB 3.0 n
Point	min ⁻¹	cm ³ /1000 H	RW	Pressure (absolute)
18	1000	51,5 - 52,5 (50,5 - 53,5)	13,5 - 13,6	1733 mbar(1300 mmHg)
18a	*** 1000	41,0 - 43,0 (40,0 - 44,0)	•	1067 mbar(800 mmHg)
19	2180	50,0 - 52,0 (49,0 - 53,0)	12,1 - 12,3	1733 mbar (1300 mmHg)
12a	100	min. 55	20,5 - 21,5	1733 mbar (1300 mmHg)
15	375	6.0 - 7.0 (5.5 - 9.5)	5,2 - 5,3	987 mbar (740 mmHg)

1. Adjusting the idle

Test supersedes Section 4.1 of test instructions VDT-W-420/300 Suppl. 2, Ed. 2.

Set the control lever to an angle of 69° . Operate the fuel-injection pump at 1000 min⁻¹.

Screw in the spring retainer until a control-rod travel of 13,5 - 13,6 mm is reached.

Set the control lever to an angle of 49° . Operate the fuel-injection pump at 1000 min⁻¹. Control-rod travel 8,8 - 9,5 must be reached.

2. Adjusting the lower rated speed

Text supersedes Section 4.3 of test instructions VDT-W 420/300 Suppl. 2, Ed. 2.

Operate the fuel-injection pump at $n = 800 \text{ min}^{-1}$. Take back the control lever until a control-rod travel of 1.0 - 1.3 mm is reached.

The resulting deflection of the control lever must be within the allowable tolerance. Fix the control lever in this position. Drive the fuel-injection pump at a speed according to Point 2 Section B of the test specification sheet. Set regulation at adjusting screw (28).

3. Adjusting the idle-speed auxiliary spring (70)

Position the idle-speed auxiliary spring in contact as the characteristic curve levels off at $n=520-550 \, \text{min}^{-1}$.

4. Adjusting the sensing lever

Place the control lever against the full-load stop. Operate the fuel-injection pump at $n=375\,\mathrm{min}^{-1}$. Adjust the sensing lever so that the control-rod travel is 0.1 (0.1 - 0.2) mm above the full-load control-rod travel at $n=1000^{-1}$.

- 5. *** Correct the quantity of fuel injected at the correction screw of the ALDA aneroid box. Max. correction + 0.75 mm control-rod travel.
- 6. Pin projection = 16.65 ± 0.1 mm
- 7. Shutoff check: Operate the fuel-injection pump at n = 200 min⁻¹. Force the control rod through the spring-loaded idle stop. The resulting control-rod travel must be max. 5 mm.
- 8. Test the pneumatic shutoff: Control lever in idle position. Operate the fuel-injection pump at $n=375\,\mathrm{min}^{-1}$. At 450 mbar (338 mmHg) (vacuum) the control rod must move briskly to control-rod travel 0 mm.
- 9. Control-lever range idle full load = $38 42^{\circ}$.

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 0C1/4 RYI 9,8 5 1

1. Edition

PE 6 P 120 A 321 RS 438

RQV 275-1200 PA 648

supersedes company PVI engine: MID 062045

Values apply to engine nozzle-and-holder assemblies 1 688 901 019 and engine fuel-injection tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1200	11,2+0,	13,4-13,7	0,5(0,9)			
275	5,3-5,5	0,7-1,3	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed		intermed	iate rated sp	eed	Lower rated	speed	•	Slidina s	leeve travel
	rev/min Control	Control rod (travel	Degree o		Control rod travel	Degree of deflection		Control rod travel		①
of control lever	rod travel	mm rev/min (2	of contro lever	rev/min	mm (4)	of control lever	rev/min	тт 3	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1230	15,2-17,8	-	-	-	ca. 11	100 275	min.6,9 5,3-5,5	250 570	0-0,9 4,7-5,0
ca. 65	10.2	1240-1250					2/3	1 3,3-3,3	880	6,1-6,3
Ca. 05		1335-1365				270-365			1200	8,3
						③				

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load of Control-ro Test oil ter		Rotational-speed 20 limitation intermediate speed			Starting Idle switchin	\mathbf{O}	Torque- travel	control (5)
rev/min	cm ³ /1000 strobes	rev/min 49	rev/min 4	cm ³ /1000 strokes 5	rev/min	cm ³ /1000 strokes	rev/min 8	travel mm
1200	134,0-137,0	1240-1250*	-	•	100	180,0-200,0	-	-
	(131,0-140,0)				275	7,0-13,0		
				·				

Checking values in brackets

* 1 mm less control rod travel than col. 2

C6

Testoil-ISO 4113

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 VWW 1,6v2 3. Edition

VE 4/9 F 1500 R 85-3

supersedes" 6.82 company:

engine:

VWW 50 Hz-Aggr.

0 460 494 108

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

see VDT-W-460/...

Pre-stroke setting

1. Settings	Rot. speed rev/min	Settings	•	Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1.1 Timing device travel	1480	2,8-3,2	mm		
1.2 Supply pump pressure	1480	4,9-5,5	bar (kgf/cm²)	·	
1.3 Fult-load delivery without charge-air pressure	1480	32,5-33,5	cm ³ /1000 strokes		2,5 (3,0)
Full-load delivery with charge-air pressure			cm ³ /1000 strokes		
1.4 Idle speed regulation	425	6,0-10,0	cm ³ /1000 strokes		2,0 (3,0)
1.5 Start	100	min. 38,0	cm ³ /1000 strokes		
1.6 Full-load speed regulation	1550	12,0-18,0	cm ³ /1000 strokes		
1.7 Load-dependent start of delivery					

2.1 Timing device	n = rev/min mm	1000	1-2,4)		(1480 2,3-3,7)		
2.2 Supply pump	n = rev/min bar (kgf/cm²)	600 2,8-3,4						
Overflow delivery	n = rev/min cm ³ /10 s	600 55-138(40-1	53)		1500 55-138(40-153)			
2.3 Fuel deliveries					3. Dimen	for assembly		
Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes		Charge-air press. bar (kgf/cm²)	Designation	and adjustment mm		
End stop	1630	max. 2,0			к	3,2-3,4		
	1550		(11,0-19,0)		KF	5,7-5,9		
	1480		(30,7-35,3)		MS	1,2-1,4		
	600	21,0-24,0	(19,5-25,5)		svs	max.2,5		
					+ FH	1,8-2,4		
switch-off	1500	0			% K	18,4-20,4		
elect.	400	0			\\$L	10,2-13,5		
idle stop	600	max. 2,0			Observations			
	425		(4,0-12,0)		+ *opera	ating		
End stop	400 500	min. 17,5 max. 23,0			stroke (KSB)			

max. cut-in voltage

2.4 Solenoid

xxx min. 10,0 V

www.wwxxxx rated voltage 12V

Testoil-ISO 4113

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 Ope 1,6 d 2. Edition

VE 4/9 F 2300 R 82 0 460 494 071

supersedes 6.82 company: Opel 2033-1,6 L

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

min

see VDT-W-460/..

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1.1 Timing device travel	1500	3,1-3,5	mm		
1 2 Supply pump pressure	1500	5,0-5,6	bar (kgf/cm²)		
1.3 Full-load delivery without charge-air pressure	1500	28,5-29,5	cm ³ /1000 strokes		2,5(3,0)
Full-load delivery with charge-air pressure	-	-	cm ³ /1000 strokes		
1.4 Idle speed regulation	450	6,0-10,0	cm ³ /1000 strokes		2,5(3,0)
1.5 Start	100	min. 42,0	cm ³ /1000 strokes		
1.6 Full-load speed regulation	2640	17,0-23,0	cm ³ /1000 strokes		
1.7 Load-dependent start of delivery	1500	-			

2.1 Timing device	um u = cex/wiu	1200 1,4-2,2(1,	1-2,5) (1500 2,6-4,0)	2, 6,8-7,6	300 (6,5-7,9)
2.2 Supply pump	n = rev/min bar (kgf/cm²)	600 2,4-3,0				300 - 7 , 9
Overflow delivery	n = rev/min cm ³ /10 s	500 55 - 138 (40	-153)		2 55 - 138(300 40-153)
2.3 Fuel deliveries Speed control lever	Rot speed	Fuel delivery		Charge-air press.	3. Dimen	SiONS for assembly and adjustment mm
End stop	3000 2800 2640 2300 2000 1500 600	max. 4,0 7,0-13,0	(6,0-14,0) (16,0-24,0) (26,1-30,7) (25,7-30,3) (26,7-31,3) (21,7-27,7)		K KF MS SVS * FH	3,2-3,4 5,7-5,9 1,2-1,4 max. 2,0 1,8-2,4
switch-off	2300	0			₹K B XL	24,2-26,2
ide stop End stop	1200 650 450 400 500	0 2,0-7,0 min. 30 max. 28	(0,5-8,5) (4,0-12,0)		Observations * *opera strok	ting e (KSB)
2.4 Solenoid	max. cut-in volta	ge xxx min. Irated voltage	10,0 V			

40

WPP 001/4 KHD 1 g 1

2. Edition

En

PES3A85D410/3 RS 2642

RSV325-1150A8B2102-1L

1 - 3 - 2 je $120^{\circ} \div 0.5^{\circ} (\div 0.75^{\circ})$

supersedes:

company:

6.82 KHD

engine:

F3L 913

Tractor

42 kW (57 PS)

2300 min

D 6007-S23

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(2.45-2.65)

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
ev/min	mm	cm ³ /100 strokes	cm ³ / 100 strokes	mm	cm ³ /100 strokes	тт
1	2	3	4	2	3	6
700	11,8+0,	1 6,6-6,7	0,3 (0,4	5)		
325	8,9-9	1 1,7-2,3	0,2 (0,4)		
	ļ					
	l					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper	rated speed		Intermediate	rated spe	ed	4 Lowe	r rated spe	ed	3 Tor	que control
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
,1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca.20	325	8,5	1150	11,5+0,
∴ kik r	χ:						100 325	min.19,0 8,9-0,1		11,8+0, 11,6+0,
⑤ ca.5	4 10,2 4,0 1350	1190-120 1265-129 0-3 -1-7	\$				485-	545=2,0		

^{**} Set speed regulation before torque control.

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-los	nd stop	6 Rotational- speed limitat. 3a Fuel delivery characteristics			Starting Idle	fuel delivery	(5a) Idle stop	
Test oil temp. 40°C (104°F) rev/min cm³/1000 strokes 1 2		Note: changed to rev/min 3	rev/min cm³/1000 strokes 4 5		rev/min cm³/1000 strokes 6 7		rev <i>l</i> min 8	Control rod travel mm
700	66,0-67,0 (64,0-69,0)	1190-1200	1150	70,5-73,5 (68,5-75,5)	100	133,5-143,	5 -	<u>-</u>

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps (A) and Governors

40

WPP 001/4 PEN 12,0 d

1. Edition

En

PE 6 P 120 A 320 RS 3088 Z

RSV 200-900 P4/421 R

supersedes company:

Volvo-Penta

engine

TMD 120 B

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(2,55-2,75) mm (from BDC)

Rotational speed	Control rod	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm 2	cm ³ /100 strokes	cm ³ / 100 strokes	mm	cm ³ /100 strokes	mm 6
1	2	3	1 0 5 (0 0)	2	3	
700	11,7+0,1	19,4-19,8	0,5 (0,9)			
250	3,6-3,8	1,6-2,0	0,5 (0,8)	`		
			1			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

(1) Uppe	rated speed		Interme	diate rated	speed	(4)		rated speed	3 To	rque control
Degree of deflection of control	Control rod travel	travel				Control- lever deflection	1	travel mm	rev/min	travel mm
lever 1	2	3	4	5	6	in degrees 7	8	9	10	11
loose	800	0,3-1,7	•	-	-	ca.22	250	3,2	-	-
	X =	4,0		,			100 250	min.20,0 3,6-3,8		
ca.53	10,7	940- 950					300-3	60 = 2,0		
29	4,0 1130	970-1000 0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ili-load stop	6 Rotational- speed limitat.	speed limitat. See characteristics			Starting fuel delivery 5 4a Idle stop			
rev/min	emp. 40°C (104°F) cm³/1000 strokes 2	changed to) rev/min 3	rev/min	cm ³ /1(·00 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	travel mm 9	
700	194,0-198,0 (192,0-200,0)	940-950*	900	218,0-222,0 (215,0-225,0)	100	390-440 = 20,0- 21,0 mmRW	250	3,7	

Checking values in brackets

* 1 mm less control rod travel than col. 2

12.82

BOSCH

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Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 KHD 19,0 k

2. Edition

" supersedes 82

company: KHD

engine: F 12 L 413 F

260 kW(352PS) _1 1 - 4 - 9 - 8 - 5 - 2 - 11 - 10 - 3 - 6 - 7 - 12 260 kW(352PS) 0 -15 -60 -75 -120-135-180 -195 -240-255-300-315°+0,5° (+0,75°) bei 2300 min

ROV 300-1150 AB 1083 L

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

PE 12A 95D 610LS 2453

vel	Fuel delivery	cm³/	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
	Auga a ton		T i		
"	cm ³ /100 strokes 3	100 strokes	mm 2	cm ³ /100 strokes 3	mm 6
9,5-9,6	8, 8 - 9,0	0,3(0,6)			
6,4-6,6	1,6-2,2	0,3(0,5)			
_					

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

Testoil-ISO 4113

Upper rated	speed			Intermediate	rated spe	eed		Lower rated speed			Sliding s	Sliding sleeve travel		
	rev/min Control rod travel	Control rod travel mm rev/min		of control	rev/min	Control rot travel mm 6	d •	Degree of deflection of control lever	rev/min 8	Control rod travel mm 3	rev/min 10	mm 11		
<u>'</u>	-	3				 					İ	1		
max.	1150	15,2-1	17 , 8	-	-	-		İ	100 300 640-7	min.8,0 6,4-6,6 00=2,0		1,4-1,6 4,0-4,3 8,5		
ca.66	8,5 4,0 1400	1190-12 1240-12 0 -	270			_		320-400 3						

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ter	d etco	Rotational-speed (20) limitation intermediate speed	Fuel deliv high idle s	need (cs)	I IONE	Starting fuel delivery (6) ldle switching point		Control (5) Control roc travel
rev/min		rev/min 49	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min 8	mm 9
1150	87,5 - 89,5 (85,5 - 91,5)	1190-1200*	700	(85,0-92,0) 88,0-91,0 (85,0-92,0)		120 - 130 bei 14,3 - 14,7 mm RW	945 800 700	9,5-9,6 9,5-9,8 9,8-10,0 9,9-10,0

Checking values in brackets

1 mm less control rod travel than col. 2

0

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 6,1 i

3. Edition

PES 6 A 85 D 410/3 RS 2415

RQV 300-1250 AB 1131 L

supersedes 9.82

company: KHD

engine: BF 6 L 913 T 96 kW bei 2500 min 1

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Rotational speed	Control rod travel	(1_85=2_05) Fuel delivery	Difference cm ³ /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
ev/min	mm 2	cm ³ /100 strokes 3	100 strokes 4	mm 2	cm ³ /100 strokes 3	mm 6
1250	12,0+0,	7,8-7,9	0,3(0,45)			_
300	8,4-8,	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

deflection of control		Control rod travel mm rev/min	(b)	Intermediate Degree of deflection of control lever		Control rod travel mm 4	Lower rated Degree of deflection of control lever 7	speed rev/min 8	Control rod travel mm 3	Sliding sl rev/min 10	mm
max.	1385	15,2-17,	,8	•	-	-	ca. 17		min.10,0 8,4-8,6	250 580	0,9-1,1 3,9-4,1
ca. 65	11,0 4,0 1525	1290-130 1415-144 0-1,0		·			450-550 ③	•	705=2,0	920 1250	5,4-5,6 7,8

Torque control travel a =0,9

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load of Control-ro Test oil ter	d stop	Rotational-speed (20) limitation intermediate speed	Fuel deliv high idle s	ery characteristics (56) peed (50)	IÚNO	J.L. U.,		Control Control rod
'rev/min 's	cm³/1000 strokes .	rev/min 49	rev/min 4	cm ³ /1000 strokes S	rev/min	cm ³ /1000 strokes 7	rev/min 8	mm 9
1250	78,0 - 79,0 (76,0 - 81,0)	1290-1300	8 00	69,5-71,5 67,5-73,5)		105.0-115,0 bei 17,4-17, mm RW	B 600	12,0+0, 12,8+0, 12,3+0,

Checking values in brackets

1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 SSC 38,1 a 1. Edition

PE 12 P 110 A 520/6 LS 3090-1

ROV 300-750 PA 614

1 - 8 - 5- 10 - 3 - 7 - 6 - 11 - 2 - 9 - 4 - 12 engine: POYAUD V 12-150 0 -37,5- 60-97,5-120-157,5-180-217,5-240-277,5-300-337,5° ± 0,5° (± 0,75°)

530 kW (720 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke mm (from BDC) Rotational speed Control rod Spring pre-tensioning (torque-control valve) Fuel delivery Control rod Fuel delivery cm³/ rev/min cm³/100 strokes 100 strokes cm³/100 strokes mm 6 750 13,3+0,1 0,4 (0,8 24,6-24,9 300 4.7-4.9 1.8-2.4 0,4 (0,7

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated	spend		Intermediate	rated sp	eed	Lower rated	speed		Sliding	leeve travel
Degree of deflection of control	rev/min Control rod trave	Control rod travel	Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel		1
lever 1	mm	rev/min 2s	lever	rev/min 5	mm 4	lever	rev/min 8	mm 3	rev/min	mm 11
max.	780	15,2-17,8	-	-	-	са.10		min.6,3	250	0,2-0,6
ca.66	12,3 4,0 1000	835-865					L	4,7-4,9 885=2,0	420 580 750	3,4-3,7 5,2-5,4 8,0
						3				

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Fuil-load de Control-red Test oil ten		Rotational-speed 20 limitation intermediate speed	Fuel deli- high idle s	rery characteristics (5a)	Starting fuel delivery 6 Idle switching point		Torque- travel	control 5
rev/min	cfh³/1000 strokes .	rev/min 40	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	travel mm
1	2	3	4	5	6	7	8	9
750	246,0-249,0 (243,0-252,0			-	100	19,5-21,0 mmRW	ı	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 SSC 19,0 a 1. Edition

PES 6 P 130 A 520 LS 3091

Port closing at prestroke

ROV 300-750 PA 614

supersedes

companySSC M

engine: Poyaud - L 685 368 kW (500 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

mm (from BDC)= RW 9.0 - 12.0 mm (2.75-2.95)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	14,7+0,1	44,5-44,9	0,4 (0,8)			
300	5,5-5,7	2,2-2,8	0,4 (1,2)			

Adjust the fuel delivery from each outlet according to the values in F

B. Governor Settings

Upper rated	speed			Intermediate	rated sp	eed	Lower rated	speed	•	Stiding s	leeve travel
Degree of deflection of control lever	rev/min Control rod travel mm	travel \	19 28	Degree of deflection of control lever	rev/min 5	Control rod travel mm 4	Degree of deflection of control lever	rev/min 8	Control rod travel mm 3	rev/min	
max.	780	15,2-17,	8	-	-	-	ca. 11	100 300	min.7,1 5,2-5,4	250 420	0,3-0,6 3,3-3,7
ca.66	13,7 4,0 1000	790-800 850-880 0-1,0					325 - 435				5,1-5,4 8,0
							3				

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

	d stop np. 40°C (104°F) , (2)	EMBLIMECIBILE SDEED	high idle s	very characteristics 5e poed 5b	idie switchir	ng point	travel	control 5 Control rod travel
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ^{-/1000} strokes	LOA/LUNU	cm ³ /1000 strokes	rev/min	mm
1	2	3	4 .	5	6	7	8	9
750	445,0-449,0 (442,0-452,0)		•	-		19,5-21,0 mm RW	•	-

Checking values in brackets

mm less control rod travel than col. 2

Testoil-ISO 4113

Test Specifications Distributor-type Fuel-injection Pumps

40

WPP 001/4 VWW 2,4 a

1. Edition

VE 6/10 F 2400 L 116-1 0 460 406 019 supersedes company VWW engine: 087- T

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

mm

see VDT-W-460/...

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1.1 Timing device travel	1500	1,4-1,8	mm	0,75	
1.2 Supply pump pressure	1500	5,7-6,3	bar (kgf/cm²)	0,75	
1.3 Full-load delivery without	600	26,5-27,5	cm ³ /1000 strokes	0 .	
charge-air pressure Full-load delivery with	1500	44,0-45,0	cm³/1000 strokes	0,75	3,0
charge-air pressure 1.4 Idle speed regulation	375	6,0-10,0	cm ³ /1000 strokes	0	3,0
1.5 Start	<i>=</i> 100	min.42,0	cm³/1000 strokes	0	
1.6 Full-load speed regulation	2600	10,0-16,0	cm³/1000 strokes	0,75	
1.7 Load-dependent start of delivery					

ifications	checking values in br	ackets ()			
n = rev/min mm	1200			2400 9(3.8-5.2)	
n = rev/min bar (kgt/cm²)	600			2400	
n = rev/min cm ³ /10 s	600 55-138(40	-153)	55-	2400 138(40-153)	
<u> </u>	1			3. Dimen	ISIONS for assembly
Rot. speed	Fuel delivery cm3/1000 strokes		Charge-air press. bar (kgf/cm²)	Designation	and adjustment
2750 2600 2400 1500 * 800 600		(42.2-46.8)	0,75 0,75 0,75 0,75 0,30 0	K KF MS SVS	3,2-3,4 6,3-6,6 1,7-1,9 2,4
2400	0			% K % L	21,8-23,8 9,4-12,7
375 600 400 500	max. 3,0 min. 20 max. 30	(4,0-12,0)		compensat = 4,2 mm. Correctio	
	n = rev/min mm n = rev/min bar (kgf/cm²) n = rev/min cm³/10 s Rot. speed rev/min 2750 2600 2400 1500 * 800 600 2400 400 400 400 400 400	Tev/min 1200	Tev/min 1200 1500	N = rev/min	n = rev/min mm

BOSCH

rexponential voltage 12V.

WPP 001/4 VWW 2,4 b

1. Edition

VE 6/10 F 2400 L 116-2 0 460 406 020

supersedes company: VWW engine: 087 T

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

6

see VDT-W-460/...

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1.1 Timing device travel	1500	1,5 - 1,9	mm	0,75	
1.2 Supply pump pressure	1500	5,7 - 6,3	bar (kgf/cm²)	0,75	
1.3 Full-load delivery without	600	25,5 -26,5	cm ³ /1000 strokes	C	
charge-air pressure Full-loud delivery with charge-air pressure	1500	44,0 -45,0	cm ³ /1000 strokes	0,75	3,0
1.4 Idle speed regulation	375	6,0 -10,0	cm ³ /1000 strokes	0	3,0
1.5 Start	100	min. 42,0	cm ³ /1000 strokes	0	
1.6 Full-load speed regulation	2600	10,0 -16,0	cm ³ /1000 strokes	0,75	
1.7 Load-dependent start of delivery					

2. Test Spec	ifications	checking values in brackets ()		
2.1 Timing device LDA = 0,75bar	n = rev/min mm	1200 0,2-1,0(0-1,3)	1500 (1,0-2,4)	2400 5,4-6,2(5,1-6,5)	
2.2 Supply pump LDA = 0,75bar	n = rev/min bar (kgf/cm²)	600 3,3-3,9		2400 8,1-8,7	
Overflow delivery	n = rev/min cm ³ /10 s	600 55-138(40-153)	•	2400 55-138(40-153)	

2.3 Fuel deliveries			
Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press bar (kgf/cm²)
End stop	2750 2600 2400 1500 * 800 600	max. 4,0 35,0-37,0 (33,7-3) (42,2-4) 32,5-33,5 (30,0-3) (23,0-2)	38,3) 0,75 46,8) 0,75 36,0) 0,30
switch-off	 		
elect.	400	0	
idle stop	375 600	max. 3,0	12,0)
End stop	400 500	min. 20,0 max. 30,0	
2.4 Solenoid	mex. cut-in volt	tage xxx min. 10 V c rated voltage 12V.	·

3. Dimen	ISIONS for assembly and adjustment
Designation	mm
K	3,2-3,4
KF	6,3-6,6
MS	1,7-1,9
SVS	2,4
х̂к	21,8-23,8
ŽL	9,4-12,7
Observations	

Manifold-pressure compensator stroke = 4.2 mm.Correction at the adjusting nut (46)

BOSCH

Geschafts'hereich KM. Kundendienst. Kfz-Ausrustung. C. 1980 by Robert Bosch GmbH. Posti'ach SO, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany Imprime en Republique Federal d'Aljemagne per Robert Bosch. GmbH.

6

Test Specifications
Distributor-type
Fuel-injection Pumps

44

WPP 001/4 VWW 2,4 a

1. Edition

E

VE 6/10 F 2400 L 116

0 460 406 018

supersedes company.VWW engine: 087- T

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

mm

see VDT-W-460/...

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1.1 Timing device travel	1500	1,4 - 1,8	mm	0,75	
1.2 Supply pump pressure	1500	5,7 - 6,3	bar (kgf/cm²)	0,75	
1.3 Full-load delivery without charge-air pressure	600	26,5 -27,5	cm ³ /1000 strokes	0	
Full-load delivery with charge-air pressure	1500	44,0 -45,0	cm ³ /1000 strokes	0,75	3,0
1.4 Idle speed regulation	375	6,0 -10,0	cm ³ /1000 strokes	0	3,0
1.5 Start	· 100	min. 42,0	cm ³ /1000 strokes	0	
1.6 Full-load speed regulation	2600	10,0 -16,0	cm ³ /1000 strokes	0,75	
1.7 Load-dependent start of delivery					

2. Test Spec	AIICAUOIIS	checking values in brackets ()	- 	
2.1 Timing device LDA=0,75bar	n = rev/min mm	1200 0,2-1,0(0-1,3)	1500 3,9-2,3) 4,1-	2400 4,9(3,8-5,2)
22Supply pump LDA=0,75bar	n = rev/min bar (kgf/cm²)	600 3,3-3,9		2400 8,1-8,7	
Overflow delivery	n = rev/min cm ³ /10 s	600 55-138(40-153)	5	2400 5-138(40-15	3)
2.3 Fuel deliveries				3. Dimer	ISIONS for assembly and adjustment
Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm²)	Designation	mm
End stop	2750 2600 2400 1500 * 800 600	max. 4,0 (9,0-17 35,5-37,5 (34,2-38 (42,2-46 33,5-34,5 (31,0-37 (24,0-30	,8) 0,75 ,8) 0,75 ,0) 0,30	K KF MS SVS	3,2-3,4 6,3-6,6 1,7-1,9 2,4
switch-off				ЯК	21,8-23,8
électr.	400	0		₹L	9,4-12,7
ide stop	375 600 400	(4,0-12 max. 3,0 min. 20,0	,0)	compensa	-presssure tor stroke
End stop	500	max. 30,0			on at the g nut (46)
2.4 Solenoid	max. cut-in voltag	xxx min. 10 V rated voltage 12V.	,		- · · · · · · · · · · · · · · · · · · ·

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 VMA 2,2a

3. Edition

supersedes0.82 company: VM-Motori engine: HR 492 HT

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

0 460 404 024

VE 4/10 F 2100 L 75

see VDT-W-460/...

1. Settings	Rot speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1.1 Timing device travel	1600	6,3-6,7	mm	0,7	
1.2 Supply pump pressure	1600	5,8- 6,4	bar (kgf/cm²)	0,7	
1.3 Full-load delivery without	1600	31,5-34,5	cm ³ /1000 strokes	0	
charge-air pressure Full-load delivery with	1600	47,5-48,5	cm³/1000 strokes	0,7	2,5 (3,0
charge-air pressure 1.4 Idle speed regulation	400	15,0-19,0	cm ³ /1000 strokes	0	2,5 (3,0)
1.5 Start	100	min. 65,0	cm ³ /1000 strokes	0	
1.6 Full-load speed regulation	2300	24,5-30,5	cm ³ /1000 strokes	0,7	
1.7 Load-dependent start of delivery	-	-			
1.7 Load-dependent start of delivery		•	·		

2. Test Spec	ancauons	checking values in brackets ()			
2.1 Timing device LDA=0,7 bar	ww u = tev/wiu	1000 1,9-2,7(1,6-3,0)		00 7,2)	2100 9,3-9,9(8,9	9-10,3)
2.2 Supply pump LDA=0,7 bar	n = rev/min bar (kgf/cm²)	400 1,5-2,1			2100 7,5-8	,1
Overflow delivery	n = rev/min cm ³ /10 s	500 55-138(40-153)			2100 55-138(4	Ĵ-153)
2.3 Fuel deliveries					3. Dimen	for assembly
Speed control lever	Rot speed rev/min	Fuel delivery cm ³ /1000 strokes		Charge-air press. bar (kgf/cm²)	Designation	and adjustment mm
End stop	2450 2300 2100 1600 * 700 600	max. 5,0 (23,5-31 41,5-44,5(40,7-45 (30,7-35 (45,7-50 43,0-46,0(41,5-47 34,0-37,0(32,5-38	,3) ,3) ,3) ,5)	0,7 0,7 0,7 0 0,7 0,3	K KF MS SVS * FH	3,2- 3,4 5,7- 5,9 1,4- 1,6 4,4- 4,6 1,8- 2,4
switch-off	2100	0			XI.	10,0-13,3
End stop	550-750 400 350 500	0 (13,0-21 min. 37,0 max. 37,0	,0		compensat = 4,2 mm. Correction	
2.4 Solenoid	max. cut-in voltage	xxx min. 10,0 Vrated voltage 12V.				

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 PEU 2,3e

2. Edition

supersedes 6.82

company: Peugeot engine: XD 2 S - US

VE 4/10 F 2075 R 67

0 460 404 012

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

mm

see VDT-W-460/...

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1.1 Timing device travel	1500	5,0-5,4	mm	0,8	
1.2 Supply pump pressure	1500	5,4-6,0	bar (kgf/cm²)	0,8	
1.3 Full-load delivery without	600	36,0-39,0	cm ³ /1000 strokes	0	2,5(3,0)
charge-air pressure Full-load delivery with	1125	48,7-49,7	cm ³ /1000 strokes	0,8	
charge-air pressure 1.4 Idle speed regulation	390	8,0-12,0	cm ³ /1000 strokes	0	2,5(3,0)
1.5 Start	100	min. 53,0	cm ³ /1000 strokes	0	
1.6 Full-load speed regulation	2400	9,5-15,5	cm ³ /1000 strokes	0,8	
1.7 Load-dependent start of delivery					

2. Test Spec	ifications	checking values in brackets ()		
2.1 Timing device	n = rev/min	600 1,3-2,1(1,0-2,4)2,	1000 9-3,5(2,5-3,9)(4,	150 0 5-5,9)6,9-7,	2000 7(6,6-8,0)
2.2 Supply pump LDA=0,8 bar	n = rev/min	400 1,6-2,2			2075 ,6-8,2
Overflow delivery	n = rev/min cm ³ /10 s	500 55-110(40-125)			2075 (40-125)
2.3 Fuel deliveries	L			3. Dimens	for assembly
Speed control lever	Rot speed	Fuel delivery	Charge-air press.	Designation	and adjustment mm

2.3 Fuel deliveries		<u> </u>			3. Dimen	Sions for assembly and adjustment
Speed control lever	Rot speed rev/min	Fuel delivery cm ³ /1000 strokes		Charge-air press. bar (kgf/cm²)	Designation	mm
End stop	2450 2400	max. 9,0	(7,5-16,5)	0,8 0,8	к	3,2-3,4
	2300	25,5-31,5	(24,5-32,5)	0,8	KF	5,7-5,9
	2000 1400	44,3-46,7 50,6-53,0	(43,2-47,8) (49,5-54,1)	0,8	MS	0,9-1,1
	1125 + 750		(46,9-51,5) (39,8-45,8)	0,8 0,25	svs	max.1,4
	600		(34,5-40,5)	0		
switch-off	2075	0			% K	20,2-22,2
•					₹L	8,8-12,2
idle stop	450-550 390	0	(6,0-14,0)		Observations Manifold-	pressure
End stop	400 500				compensat =4,5 mm Correction	or stroke
2.4 Solenoid	max. cut-in voltag 效果次例的要求XX	<pre>xxx min. rated volt</pre>	10.0 V age 12V.			

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46

WPP 001/4 VWW 2,3 b

3. Edition

En

VE 6/10 F 2400 L 32-1 (P) 0 460 406 009; 010

.

supersedes • 82 company: VW

engine: 087/10 Autom.

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

see VDT-W-460/...

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1.1 Timing device travel	1500	2,8 - 3,2	mm		
1.2 Supply pump pressure	1500	5, 2 - 5,8	bar (kgf/cm²)		
1.3 Full-load delivery without	1500	28,5 - 29,5	cm ³ /1000 strokes		2,5(3,0)
charge-air pressure Full-load delivery with	-	-	cm ³ /1000 strokes		
charge-air pressure 1.4 Idle speed regulation	350	10,0 - 14,0	cm ³ /1000 strokes		2,5(3,0)
1.5 Start	100	min. 42,0	cm ³ /1000 strokes		
1.6 Full-load speed regulation	2600	15,0 - 22,0	cm ³ /1000 strokes		
1.7 Load-dependent start of delivery	-	-			

2.1 Timing device	n = rev/min mm	1000 0,8-1,6(0,5-1,9)	1500 (2,3-3,7)	6,0-6,8	2400 3(5,7-7,1)
2.2 Supply pump	n = rev/min bar (kgf/cm²)	600 2,8-3,4			2400 7,7-8,3
Overflow delivery	n = rev/min cm ³ /10 s	500 55-138(40-153)		55-3	2400 138(40-153)
2.3 Fuel deliveries Speed control lever	Rot. speed	Fuel delivery	Charge-air press.	3. Dimer	for assembly and adjustment mm
End stop	2700 2600 2400 1500 750	6,0-12,0 (14,5-22,5 22,0-24,0 (20,7-25,3 (26,7-31,3 26,0-29,0 (24,5-30,5	5) 3) 5)	K KF MS SVS	3,2-3,4 6,4-6,6 1,4-1,6 max.3,0
switch-off	2400	0		XK RL	18,5-20,5
End Stop	400 350 400 500	3,0-9,0 (8,0-16,0 min. 20 max. 25	Observations Stop check (lever) at n = 2400 min-1		
2.4 Solenoid	max. cut-in volts	rated voltage 12V.			

Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 RVI 9,8 b

1. Edition

_Eı

PE 6 P 120 A 321 RS 438

RQV 275-1200 PA 538

supersedes_

company: RVI

engine: MID 062045

152 kW (206 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (3.45-3.65) mm (from BDC)

Rotational speed rev/min		Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1200	10,6+0,1	14,7-15,1	0,5(0,9)			
275	5,3-5,5	0,7-1,3	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed		Intermediate	rated sp	eed	Lower rated	speed		Slidings	leeve travel
deflection	rev/min Control	Control rod travel	/ deflection		Control rod travel	ravel deflection travel		Control rod travel	J., J., J.	1
of Control lever	rod travel	rev/min (2	of control	rev/min	mm (4)	of control lever	rev/min	mm (3)	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1200	15,2-17,8	-	-	-	ca. 10	100 275	min.6,9 5,3-5,5	250 570	0,4-0,7 3,7-3,9
ca. 64	9,6	1240-1250							880	5,3-5,5
i	4,0 1450	1310-1340 0-1,0)			280-390			200	8,0
						30				

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-roc Test oil terr		Rotational-speed 20 fimitation intermediate speed	Fuel delivings ide s	rery characteristics (5e) peed (50)	idle	idle switching point		control 5 Control rod
rev/min	cfts³/1000 strokes .	rev/min 4a	rev/min	cm³/1000 strokes	rev/min			travel mm
1	2	3	4	5	6	7	8	9
1200	147,0-151,0 (144,0-154,0)		-	-	100	180,0-200,0	-	-
				·	275	7,0-13,0		
						·		

Checking values in brackets

* 1 mm less control rod travel than col. 2

1.83

Testoil-ISO 4113

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 MB 9,5 a 3

1. Edition

PES 5 P 110 A 820 LS 434 ROV 300-1100 PA 594-1

1 - 3 - 5 - 4 - 2 je 72 ° $^{+}$ 0,5 ° ($^{+}$ 0,75 °)

supersedes

companyDaimler Benz engine OM 409 135 kW (184 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

mm (from BDC)

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	10,4+0,1	11,0-11,2	0,4(0,8)			
300	7,6-7,8	1,2-1,8	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in p

B. Governor Settings

Upper rated s	peed			Intermediate	rated sp	eed	Lower rated	speed		Sliding	leeve travel
deflection	rev/min Control rod travel	travel \	•	Degree of deflection of control		Control rod travel	Degree of deflection	}	Control rod travel	Siloling	1
	mm	rev/min (28	lever	rev/min	mm 4	of control lever	rev/min	mm (3)	rev/min	mm
1	2	3		4	5	6	7	8	9	10	11
max.	1150	15,2-17	,8	-	-	-	ca.34	100 300	min. 8,5	250 530	1,0-1,3 3,9-4,2
63.64	0.4	1140 11	E 0				İ	300	1 /,0-/,2	820	5,5-5,8
ca.64	9,4	1140-11 1175-12					320-43	Į.		1100	8,2
i i	1300	_	,0				320-43	ĺ			
							3a)				

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-roe Test oil terr	elivery 1 stop np. 40°C (104°F) 2	Rotational-speed 2b limitation intermediate speed	Fuel delivingh idle s	rery characteristics (5a)	Starting Idle switching		Torque- travel	control 5
rev/min	cm³/1000 strokes	rev/min 4	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	travel mm
1100	110,0-112,0	1140-1150*	600	93,0-97,0	100	130,0-150,0	8	9
	(107,0-115,0)		(90,0-100,0		,		
							ر	

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

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Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 11,41

2. Edition

____E

PES 6 P 110 A 820 LS 442

RQV 300-1100 PA 594-2

supersedes, 81 companyDaimler-Benz engine: 0M 407 h

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	11,3+0,1	12,5 - 12,7	0,4(0,8)			
300	7,7-7,9	1,3 - 1,9	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

deflection of control	peed rev/min Control rod travel rom	Control rod travel mm rev/min 2s	of control	rated spe	Control rod travel	Lower rated Degree of deflection of control lever	rev/min	Control rod travel	Sliding sleeve travel	
max. ca. 62	1100 10,3 4,0 1300	15,2-17,8 1140-1150 1175-1205 0 - 1	1	-	-	ca. 40 320–450		min. 9,4 7,7-7,9	250 550 800 1100	1,0-1,3 4,0-4,3 5,3-5,7 8,1

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-roe Test oil ten		Rotational-speed 2b limitation intermediate speed		ery characteristics (5a) peed (50)	Starting Idle switching		Torque-	control 5
rev/min		revimin 49	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	travel mm
1100	125,0-127,0 (122,0-130,0)		600	108, 0- 112, 0 (105, 0- 115, 0)		130, 0-150, 0		•

Checking values in brackets

* 1 mm less control rod travel then col. 2

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 11,4 L3

2. Edition

Er

PES 6 P 110 A 820 LS 442

Testoil-ISO 4113

ROV 300-1100 PA 594-3

supersedes 2.82 company: Daimler-Benz

engine: OM 407

162 kW (220 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

ort closing at prestroke 3,2-3,3 mm (from 80C) Zy1. 6

	Rotational speed Control rod travel rev/min mm 1		Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
	1100	11,0+0,	1 11,6-11,8	0,4(0,8)			
•	300	7,8-8	0 1,4 - 2,0	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed				Intermediate	rated sp	eed					Sliding sl	Sliding sleeve travel	
Degree of	. 1	Control rod travel	\odot	Degree of deflection		Control re	d	Degree of deflection		Control ro)d		0
of control	rod travel	-	(2a)	of control	rev/min	mm	(4)	of control lever	rev/min	mm	3	rev/min	mm
1	2	3		4	5	6		7	8	9		10	11
max.	1100	15,2-17	,8	-	-	-	•	ca.32	100 300	min. 7.3-7			1,0-1,3 3,9-4,2
ca. 60		1140-11 1175-12 0 - 1	205					320-450			•	820 1100	5,5-5,8 8,1
								39					

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-ros	stoo .~	Rotational-speed 2b limitation intermediate speed	Fuel delivingh idle s	ery characteristics (5a) peed (5b)	Starting I Idle switching		Torque- travel	control (5) Control rod	
			rev/min	cm ³ /1000 strokes	rev/min 6	cm-V1000 strokes 7	rev/min 8	travel mm	
1100	116,0-118,0 (113,0-121,0)		600	103,0-107,0 (100,0-110,0)		130,0-150,0	•	-	

Checking values in brackets

* 1 mm less control rod travel than col. 2

1.83

BOSCH

WPP 001/4 HAN 7,2 b 1. Edition

PE 4 A 95 D 420 RS 2662

RSV 350-1100 A 8 B 1120 DR

supersedes-

company Hanomag

Use overflow valve 1 417 411 000 ** Test cold-start device according to VDT-DAF-004, page 2

engine D 943 Å 1

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,15-2,25

mm (from BDC)

(2.10-2.30)Port closing at prestroke

Rotational speed	Control rod	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm 2	cm³/100 strokes 3	cm ¹ / 100 strokes 4	നന 2	cm ³ /100 strokes 3	mm 6
1100	11,3+0,1	11,0-11,2	0,3(0,6)]
350	6,4-6,6	1,1-1,7	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Testoil-ISO 4113

Degree of deflection of control lever	Control rod travel mm		Interm	ediate rate	ed speed	Control- lever deflection in degrees 7	rev/min	rated speed Control rod t avel mm 9	3 for rev/min	rque control Control rod travel mm
loose	800 x =	0,3-1,0 3,75	-	-	•	ca.19	350 100	6,0 min.19,5	i	11,3-11,4
ca.49	10,3	1140-115 1195-122					350 490-550	6,4-6,6 = 2,0	980	11,4-11,6

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	Hi-toad stop	Rotational- speed limitat		nel deirvery naractenstics	Starting f	uel delivery 5	4a) Idle stop [Control rod]	
rev/min	emp 40°C (104°F) cm³/1000 strokes 2	changed to) rev/min 3	rev/min	cmi/1000 strokes 5	rev/min	cm ³ /1000 strokes	rev/min 8	travel mm 9
1100	109,5-111,5 (107,5-113,5)	1140-1150*	500	104,0-107,0 (102,0-109,0)	100	19,5-21,0 mm RW **		

Checking values in brackets

* 1 mm less control rod travel than col 2

WPP 001/4 FZA 12.9 a 2. Edition

supersedes 2.81 company Fiat 8260.02

RO 300 / 1200 PA356 PE 6 P 120 A 720 LS 3803 Testing with T nozzles and fuel lines $8 \times 2^{\circ} \times 1000$ according to .. W 400/305

± 0,50° 1 - 6 - 5 - 4 - 3 - 2 0 -75 -120-195-240-3150 (± 0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(3.45 - 3.65)

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm 2	cm ³ /100 strokes	100 strokes	mm 2	3	6
1200	9,3-9,4	17,3 - 17,7	0,5(0,9)			
300	5,9-6,	2,8-3,6	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking	Checking of slider Full-loa			gulation		Idle spec	-		_	Torque c	control
		Setting po	oint	Test spec	cifications	Setting p		Test spe	cifications	1 .	
rev/min 1	Control rod travel mm 2	rev/min	Contrel red travel rnm 4	rev/min	Control rod travel mm 6	rev/min 7	red travel mm 8	rev/min 9	Control rod travel mm 10	rev/min	Control rod travel mm 12
650	15,6-16,4	650	16,0	1 -	1280-1310		6,0	300	min 7,5 5,9-6,1 440 =2,0		9,3-9,4 9,3-9,5

Torque-control travel on flyweight assembly dimension a =

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	ontrol lever	Control rod stop	Fuel deliv	ery characteristics	Starting fuel delivery		
Test oil temp 40°C (104°F) rev/min cm³/-1000 strokes 1 2		rev/min 3	rev/min 4	cm³/~1000 strokes	rev/min 6	cm ³ /100 strokes 7	
1200	173,0 - 177,0 (170,0 - 180,0)	-	-	-	ł .	19,5-21 mm EW 28,0-36,0	

Checking values in brackets

1.83

40

WPP 001/4 MB 9,5 a 5

1. Edition

En

PES 5 P 110 A 820 LS 434 RSV 350-1100 PO/485 1 - 3 - 5 - 4 - 2 je 72° [±] 0,5° ([±] 0,75°)

company Daimler-Benz OM 409 137 kW (186 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

3,0 - 3,1 (2,95-3,15)

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference cm ³ / 100 strokes	Control rod travel	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve)
1 .	2	3	4	2	3	6
1080	10,9+0,1	12,0-12,2	0,4 (0,8)			
350	6,8-7,0	1,1-1,7	0,4 (0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Uppe	r rated speed	l rev/min	Intermediate rated speed			Lower rated speed			(3) Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control- lever deflection in degrees 7	rev/min	Control rod travel mm	rev/min	Control rod travel mm
loose	800 x =	0,3-1,0 2,25	-	-	-	-	-	-] -	-
ca. 34	9,9 4,0 1300	1120-1130 1180-1210 0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ill-load stop emp 40°C (104°F)	Rotational-speed limitat Note: 39 Fuel delivery characteristics			Starting I	fuel delivery 5	Idle stop	
rev/min	cm ³ /1 000 strok es 2	changed to) rev/min 3	rev/min 4	cm ³ /1000 strokes 5 ^t	rev/min 6	cm³/1000 strokes 7	rev/min 8	travel mm 9
1080	120,0-122,0 (117,0-125,0)	1120-1130*	-	-	100	130,0-150	0 -	-

Checking values in brackets

* 1 mm less control rod travel than col 2

1.83

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 FOR 5,9 f 3

En

1. Edition

PES 6 A 90 D 210 RS 2629

RSV 350-1300 AOB 2139 L

supersedes

company: Ford GB

380

engine:

At port closing the locating pin must engage in the slot the pointer.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	troke	(2.65-2.85)	mm (from BDC)			
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	cm ³ / 100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1250	12,9+0,1	7,2-7,3	0,3(0,45			}
350	6,4-6,5	0,9-1,3	0,2(0,4)			
	<u>}</u>		ŀ		•	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper	rated speed		Intermediate	rated spe	ed	4 Lowe	r rated spe	ed	3 Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/m i n	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	•	•	ca. 34	350	6,0	-	-
 	x =	2,75			•		100 350	min.19,0 6,4-6,6		
ga. 68	11,9 4,0 1670	1365-1375 1505-1535 0,3 - 1,7	:					575=2,0mm max. 1,0	•	

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full+	oad stop	6 Rotational- speed limitat.	3a Fuel delivery characteristics		Starting Idle	fuel delivery	Sa idle stop	
Test oil temp. 40°C (104°F) rev/min cm³/1000 strokes 1 2		Note: changed to rev/min 3	rev/min	cm ³ /1000 strokes 5	revimin 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm
1250	72,0-73,0 (70,0-75,0)	1365-1375 *	-	•	100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

40

WPP 001/4 UNI 9,6 b1

1. Edition

En

PES 6 P 110 A 820 RS 424

RQ 275/1300 PA 573

supersedes...

company: IVECO-UNIC 8220-02

148 kW (204 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pymp Settings

Port closing at prestroke

(2,15-2,35)

mm (from BDC)

Rotational speed rev/min 1	Control rod travet mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1300	10,5+0,1	9,5-9,7	0,4(0,8)			
275	4,9-5,1	1,2-1,8	0,4(0,7)			
	•			ļ		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin	· ~	Full-load s Setting po	•	-	cifications (4)	Idle spec	•		cifications (5)	Torque o	control
rev/min 1	Control rod travel mm	r e v/min 3	Control red travel rnrn 4	Central red travel mm 5	rev/min 6	rev/min 7	Control red travel rmm 8	rev/min 9	Control rod	rev/min	Control rod travel
600	15,6-16,4	600	16,0		1345-1360 1410-1440 0 - 1,0		5,0	100 275 360-	min.6,5 4,9-5,1 400= 2,0		10,5-10,6 10,5-10,7

Torque-control travel on flyweight assembly dimension a =

mm

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on control lever np. 40°C (104°F)	Control rod stop 3a	Fuel delive	ery characteristics 36	Starting f	tuel delivery
rev/min	cm ³ /-1000 strokes 2	rev/min 3	rev/min	cm ³ /-1000 strokes	rev/min	red tradi cm ³ /1000 strokes:// mm 7
1300	95,0-97,0 (92,0-100,0)	-	-	-	100	140,0-160,0

Checking values in brackets

1.83

BOSCH

Testoil-ISO 4113

Test Specifications Distributor-type **Fuel-injection Pumps**

WPP 001/4 PER 5,8e

1. Edition

supersedes _

VE 6/12 F 1300 L 107 0 460 406 027

Nozzle-and-holder assembly company: Perkins 1 688 901 020 (172 + 3 bar) engine: T 6.354.

T 6.354.4

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

0,35

mm +0,02 (0,04)

see VDT-W-460/...

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1.1 Timing device travel	-	-	mm	-	
1.2 Supply pump pressure	1000	4,2-4,8	bar (kgf/cm²)	0,75	
1.3 Full-load delivery without charge-air pressure	500	67,0-71,0	cm ³ /1000 strokes	0	
Full-load delivery with charge-air pressure	1000	95,5-96,5	cm ³ /1000 strokes	0,75	3,5
1.4 Idle speed regulation	200	8,0-12,0	cm ³ /1000 strokes	0	3,5
1.5 Start	100	min. 90,0	cm ³ /1000 strokes	0	
1.6 Full-load speed regulation	1450	32,0-38,0	cm ³ /1000 strokes	0,75	
1.7 Load-dependent start of delivery					

2. Test Spe	cifications	checking values in brackets ()
2.1 Timing device	n = rev/min mm	blockiert	·
2.2 Supply pump LDA=0,75bar	n = rev/min ber (kgf/cm²)	400 2,0-2,6	1300 5,8-6,4
Overflow delivery	n = rev/min cm ³ /10 s	500 55-138(40-153)	1300 55-138(40-153)
2 3 Frust deliveries	ــــــــــــــــــــــــــــــــــــــ		3. Dimensions

2.3 Fuel deliveries			
Speed control lever	Rot. speed rev/min	Fuel delivery cm3/1000 strokes	Charge-air press. bar (kgf/cm²)
End stop	1600 1550 1450 1250 1000 * 600 500	0 1,0-9,0 (0 -10,0) (30,0-40,0) 90,0-93,0 (88,5-94,5) (93,0-99,0) 85,0-87,0 (83,0-89,0) (65,3-72,7)	0,75 0,75 0,75 0,32
switch-off	1300	0	
idle stop	200 300 450	(5,0-15,0) max. 7,0	
End stop	150 250	min. 90,0 max. 65,0	
2.4 Solenoid	max. cut-in voltag	xxx min. 10 V rated voltage 12V.	

Designation	tor assembly and adjustment mm
K	-
KF	5,2-5,3
MS	1,2-1,3
svs	max. 1,2
X K	20,2-22,2
KL	8,4-11,7
Observations *Monifolia	

Manifold-pressure compensator stroke = 4.5 mm.Correction at the adjusting nut (46)

D₆

Test Specifications Distributor-type Fuel-injection Pumps

WWP 001/4 PER 5,8c2

2. Edition

<u>En</u>

supersedes 4.82

Nozzle-and-holder assembly company: Perkins 1 688 901 020 (172 + 3 bar) engine: T 6.354.

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

0 460 426 022

VE 6/12 F 1300 L 21-3

mm

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1.1 Timing device travel	600	2,2-2,8	mm	0,74	
1.2 Supply pump pressure	800	4,4-5,0	bar (kgf/cm²)	0,74	
1.3 Full-load delivery without	1000	70,5-73,5	cm ³ /1000 strokes	0	2,5(3,0)
charge-air pressure Full-load delivery with	1000	95,5-96,5	cm ³ /1000 strokes	0,74	
charge-air pressure 1.4 Idle speed regulation	270	8,0-12,0	cm ³ /1000 strokes	0	2,5(3,0)
1.5 Start	100	min. 80,0	cm³/1000 strokes	0	
1.6 Full-load speed regulation	1480	47,0-53,0	cm ³ /1000 strokes	0,74	
1.7 Load-dependent start of delivery					

2.1 Timing device	n = rev/min mm	400 0,4-1,2(0,1-	_	00 8-3,2)	800 3,8-4,6(3,5	5-4,9)
LDA=0,75bar 22 Supply pump	n = rev/min ber (kgf/cm²)	400 2,7-3,3			1300 6,5-7,1	
LDA=0,75bar Overflow delivery	n = rev/min cm³/10 s	500 55-111(40-1	26)		1300 55-111(40-	126)
2.3 Fuel deliveries Speed control lever	Rot speed	Fuel delivery		Charge-air press.	3. Dimen	SIONS for assembly and adjustment mm
	rev/min	cm³/1000 strokes		bar (kgf/cm²)	ļ	
End stop .	1550 1480	max. 12,0	(46,0-54,0)		K	3,2-3,4
	1300 1000	86,0-88,0	(85,2-89,8) (69,7-74,3)		KF	5,1-5,3
	1000		(93,7-98,3)		MS	0,9-1,1
	* 700 500	82,0-84,0) 66,5-69,5	(80,7-85,3) (65,0-71,0)	0,20	svs	max. 6,0
					ΧĶ	20,2-22,2
switch-off	1300	C			χľΒ	11,7-15,1
idle stop	330-410 270	0	(6,0-14,0)			d-pressure
End stop	120 230	min. 80 max. 75			= 4,5 m Correct	ator stroke m. ion at the ng nut (46)
2.4 Solenoid	mex. cut-in volte	ge		L		

Testoil-ISO 4113

Test Specifications Distributor-type Fuel-injection Pumps

PER 5,8 c4

2. Edition

WWP 001/4

Nozzle-and-holder assembly company: 1 688 901 020 (172 + 3 bar) engine:

9.82 Perkins T6.354.4

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke	setting	

0 460 426 013

VE 6/12 F 1300 L 21-2

0.45

1. Settings	Rot. speed rev/min	Settings	•	Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1.1 Timing device travel	600	2,5-2,9	mm	0,65	
1.2 Supply pump pressure	600	3,8-4,4	bar (kgf/cm²)	0,65	
1.3 Full-load delivery without charge-air pressure	1000	78,5-82,5	cm ³ /1000 strokes	0	
Full-load delivery with charge-air pressure	1000	92,5-93,5	cm ³ /1000 strokes	0,65	3,0(3,5)
1.4 Idle speed regulation	270	8,0-12,0	cm ³ /1000 strokes	0	3,0(3,5)
1.5 Start	100	min. 78,0	cm ³ /1000 strokes	0	
1.6 Full-load speed regulation	1480	42,0-50,0	cm³/1000 strokes	0,65	
1.7 Load-dependent start of delivery					

2. Test Spec	affications	checking values in b	rackets()_			
L1 Timing device	n = rev/min	400 0,7-1,5(0,		500 ,0-3,4)	800 3,8-4,6(3	,5-4,9)
2.2 Supply pump LDA = 0,65 ba	n = rev/min bar (kgf/cm²)	400 3,0-3,6	· · · · · · · · · · · · · · · · · · ·		1300 6,0-6,6	
Cverflow delivery	n = rev/min cm ³ /10 s	500 55-138(40-	153)		1300 55-138(40	-153)
2.3 Fuel deliveries Speed control lever	Rot speed	Fuel delivery		Charge-air press.	3. Dimen	SIONS for assembly and adjustment mm
End stop	1550 1480 1300 1000 1000 * 700 500	max. 9,0 86,5-89,5	(41,0-51,0) (83,0-93,0) (90,0-96,0) (77,5-83,5) (83,5-89,5) (66,8-74,2)	0,65 0,65 0,65 0,65	K KF MS SVS	5,1-5,4 0,9-1,1 max.6,0
switch-off	1300	0			‡K ₹L	20,2-22,2
End stop	330-420 270 150 230	0 min. 78 max. 75	(5,0-15,0)		compen = 4,0	ld-pressure sator stroke mm. tion at the
2.4 Solenoid	mex. cut-in volta	ge			adjust	ing nut.(46)

WPP 001/4 SCA 11,0 r 4 3. Edition:

En

PE 6 P 110 A 720 RS 3040

RSV 350-1100 P1/481

supersedes 10.81
Company DS 11
engine Tractor

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

Testoil-ISO 4113

3,3-3,4 (3,25-3,45)

mm (from BDC)

= RW 9,0-12,0 mm

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm (2)	cm ³ /100 strokes	cm³/ 100 strokes	നന	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1100	12,3+0,1	15,8-16,0	0,4(0,8)			
350	3,6-3,8	0,9-1,3	0,2(0,4)			
				Ì		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Uppe	r rated speed	rev/min	Interme	diate rated	speed	(A)	Lower	rated speed	(3) To	rque control
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control- lever deflection in degrees 7	rev/min	Control rod travel mm	rev/min	Control rod travel mm 11
loose	800 x =	0,3-1,0 2,75	-	-	-	ca. 26	100	3.2 min. 20,0		
ca.51	11,9 4,0 1350	1140-1150 1190-1220 0,3-1,7					350 400-460	3,6-3,8 = 2,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

fl-load stop	6 Rotational- speed limitat.			Starting f	ruel delivery 5	1dle stop		
emp. 40°C (104°F) cm³/1000 strokes 2	Note: changed to) rev/min 3	rev/min	cm ³ /1000 strokes 5	rev/min	cm³/1000 strokes 7	rev/min	Control rod travel mm	
158,0-160,0 (155,0-163,0)	1140-1150*	600	159,0-163,0 (156,0-166,0)	100			-	
				350	9,0-13,0			
	cm ³ /1000 strokes 2 158,0–160,0	mp. 40°C (104°F) cm³/1000 strokes 2 158,0–160,0 1140–1150*	mp. 40°C (104°F) cm³/1000 strokes 2 158,0-160,0 Note: changed to) rev/min 3 4 158,0-160,0 1140-1150* 600	Note: changed to) rev/min 2	http: 40°C (104°F) cm ³ /1000 strokes changed to rev/min	timp. 40°C (104°F) cm ³ /1000 strokes changed to	Note Changed to Note	

Checking values in brackets

* 1 mm less control rod travel than col. 2

1.83

BOSCH

WPP 001/4 MB 5,7 v 9

2. Edition

PES 6 A 90 D 410 RS 2596

RSV 350-750 AOB 741 L

supersede 82

companyDaimler-Benz

engine: OM 352 A

65 kW (88 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	stroke	(1.95-2.15)	mm (from BDQ	RW 9,0	- 12,0 mm	
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	cm³/ 100 strokes	шш	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
700	13,0+0,1	6,6 - 6,7				_]
100	-	7,8 - 8,8				
ı					•	
	L	1			_l	

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

Upper	rated speed		mtermediate	rated spe	ed	4 Lowe	r rated spe	ed	3 Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	500	0,3-1,0	-	-	-	ca. 14	350	8,1	-	-
	x, =						100	min.19,0		li
3. 26	12,0 4,0 850	750-755 788-801 0,3-1,7					360-42	l i		

The numbers denote the sequence of the tests. Set auxiliary idle spring at 2.0 mm control-rod travel.

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full+k	pad stop	6 Rotational- speed limitat.		el delivery rracteristics	Starting Idle	fuel delivery	5a idle stop		
Test oil temp. 40°C (104°F) rev/min cm³/1009 strokes 1 2		Note: changed to rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm	
700	65,5-66,5 (63,5-68,5)	7 <i>5</i> 0-755*	-	•	100	71,0-81,0	-	-	

Checking values in brackets

* 1 mm less control rod travel then col. 2

1.83

40

WPP 001/4 MB 11,4 1 4

2. Edition

En

PES 6 P 110 A 820 LS 442

RSV 350-750 P 1/487

supersedes 4.82

company: Dai

Daimler-Benz

engine:

OM 407

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

Testoil-ISO 4113

3,2-3,3 (3,15-3,35)

verm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Ditrarence	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	cm ³ / 100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
730	11,7+0,	1 11,9 - 12,1	0,4(0,8)			
350	7,3-7,5	1,3 - 2,1	0,4(0,7)			
	į				•	
	ŀ		†		_	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings.

Upper	rated speed		intermediate	rated spe	ed	4 Lowe	r rated spe	ed	3 Torque control	
Degree of deflection of control lever		Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800 x=	0,3-1,0 2,5	-	•	•	-	-	-	-	-
€ca.	10,7 4,0 850	750-755 785-795 0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full+	oed stop	6 Rotational- speed limitat.	3e) Fuel delivery characteristics Starting fuel delivery Idle			fuel delivery	(5a) idle stop		
Test oil ten rev <i>imin</i> 1	p. 40°C (104°F) cm³/1000 strokes 2	Note: changed to rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strakes 7	rev/min 8	Control rod travel mm	
730	119,0 - 121, (116,0 - 124,		•	-	100	130,0-150,0		-	

Checking values in brackets

* 1 mm less control rod travel than col. 2

4

WPP 001/4 MB 11,4 L 1 2. Edition

<u>En</u>

PES 6 P 110 A 820 LS 442

RQ 300/1100 PA 327-2

supersede 8.81
Daimler-Benz
company
OM 407 h
engine: 177 kW (241 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

estoil-ISO 411

3,2 - 3,3 (3 15-3 35)

mm (from BDC) Zyl. 6

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	11,3+0,1	12,5 - 12,7	0,4(0,8)			
300	7,7-7,9	1,3 - 1,9	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin			Full-load speed regulation Setting point Test specifications			Idle speed regulation Setting point Test specifications				Torque control		
r ev /min 1	Control rod travel mm 2	rev/min	Control rod travel rnm		Control rod travel mm		Control rod travel rnm	rev/min	Control rod travel	rev/min	Control rod trav el mm 12	
600	. 13,0-14,0	600	13,5		1145-1160 1180-1210 0 - 1,5			300	min. 9,4 7,7-7,9 2,0 mm	-	-	

Torque-control travel on flyweight assembly dimension a =

mm

Speed regulation: 1145 - 1160 min -1

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on control lever np. 40°C (104°F)	Control rod stop	Fuel delive	ery characteristics	Starting f	uel delivery
rev/min	cm³/~1000 stroke%	rev/min	rev/min 4	cm³/-1000 strokes 5	rev/min 6	cm ³ /100 strokes 7
1100	125,0 - 127,0 (122,0 - 130,0)	-	600	110,0 - 114,0 (107,0 - 117,0)	100	130,0 - 150,0

Checking values in brackets

1.83

BOSCH

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PES 5 P 110 A 820 LS 434

RQ 300/1100 PA 327-3

je $72^{\circ} \div 0.5^{\circ} (0.75^{\circ})$

supersedes 8.81 ?.37
company Daimler-Benz
OM 409
141 kW (192 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

1 - 3 - 5 - 4 - 2

Port closing at prestroke

(2.95-3.15)

mm (from BDC) Zy1. 5

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	10,7+0,	1 12,0 - 12,2	0,4(0,8)	:		1
300	7,0-7,2	1,2- 1,8	0,4(0,7)			
1			<u></u>			<u> </u>

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking	g of slider	Full-load s	peed re	gulation		Idle spec	ed regula	ition		Torque o	control
		Setting po	int	Test spec	cifications	Setting p	point	Test spe	cifications		
rev/min	Control rod travel mm	rev/min 3	Control red travel crim 4	rev/min	Control rod travel mm	rev/min 7	Control rod travel rom 8	rev/min 9	Control rod travel mm 10	rev/min	Control rod travel mm 12
600	13,8-14,6	600	14,2	9,7 4,0	1145-1160 1175-1205	300	7,1	100 300	min.10,0		-
								375-	415=2,0		

Torque-control travel on flyweight assembly dimension a =

mm

Speed regulation: At - 1160 min⁻¹

t mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d	elivery on control lever no. 40°C (104°F)	Control rod stop	Fuel deliv	ery characteristics	Starting f	Starting fuel delivery		
rev/min	cm ³ /-1000 strokes	rev/min	rev/min	cm ³ /-1000 strokes 5	rev/min	cm ³ /100 strokes		
1100	120,0 - 122,0 (117,0 - 125,0)	· -	600	108,0 - 114,0 (105,0 - 117,0)	100	130,0 - 150,0		

Checking values in brackets

1.83

BOSCH

40

WPP 001/4 MB 9,5 a 4
1. Edition

PES5P110A820 LS 434

RQ300/1100 PA 327-4

supersedes ,

company: Daimler-Benz

engine

OM 409

135 kW (184 PS)

1 - 3 - 5 - 4 - 2 je $72^{\circ} - 0.50^{\circ} (-0.75^{\circ})$

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

3,0-3,1 /2 05 2 45\

mm (from BDC

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100 300	11,1+0, 8,0-8,		0,4(0,8) 0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin	\ \ \	Full-load s Setting po	•	~	cifications (4)	idle spec Setting p	•		cifications (5)	Torque o	(3)
rev/min	Control rod travel mm	1	Control red travel rnm 4	Central red travel rmm 5	rev/min 6	rev/min 7	Centrel red travel mm 8		Control rod travel mm	rev/min	Control rod travel
. 600	13,8-14,6	600	14,2	10,1 4,0 1300	1145-1160 1175-1205 0 - 1,0		7,1	100 300	min. 8,7 7,0-7,2	-	-

Torque-control travel
on flyweight assembly dimension a =

Speed regulation: At 1145-1160 min-1

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de governor co Test oil tem		Control rod stop (3a) Fuel delivery characteristics			Starting for Idle spee	uel delivery 6		
rev/min	cm³/~1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	rad travel cm ³ /1000 strokes:// mm 7		
1100	110,0-112,0 (107,0-115,0)	•	600	94,0-98,0 (91,0-101,0)	100	130,0-150,0		

Checking values in brackets

1.83

BÒSCH

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2

Test Specifications Fuel Injection Pumps 2 and Governors

WPP 001/4 MB 11,4 12

3 . Edition

PES 6 P 110 A 820 LS 442

RQ 300/950 PA 483

supersedes 3.82

_{company:} Daimler-Benz

OM 407 engine:

162 kW (220 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

mm (from BDC) Zy]. 6

	Ι.	3,13-3,337				
Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
950	12,1+0,1	12,2 - 12,4	0,4(0,8)			
300	8,0-8,2	1,4-2,0	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking PRG che		Full-load s			cifications (4)	Idle spec	•		cifications (5)	Torque d	(3)
rev/min	Control rod travel mm	rev/min	Centrel red travel mm	Central red travel mm	rev/min 6	rev/min 7	Central rad travel mm	rev/min	Control rod travel mm	rev/min 11	Control rod University
600	13,0-14,0	600	13,5	11,1 4,0 1150	995-1010 1010-1045 0 - 1,0		8,1	300	min.9,7 8,0-8,2 50=2,0mm	-	-
Torres	control travel				L			95 -	1010 min *	1	1 mm less contro

Torque-control travel
on flyweight assembly dimension a =

Speed regulation: At

1 mm less control

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on ontrol lever p. 40°C (104°F)	Control rod stop	Fuel deliv	ery characteristics 3b	Starting fuel delivery Idle speed		
rev/min	cm ³ /-1000 strokes	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	rus travel cm ³ /1000 strokes:/ mm 7	
950	122,0 - 124,0 (119,0 - 127,0)		600	118,0 - 122,0 (115,0 - 125,0)	100	140,0 - 160,0	

Checking values in brackets

1.83

WPP 001/4 MB 8,7 1

2. Edition

PE6A90D410RS2124

RQ 450/1250 AB 812

supersedes 11.80 companyaimler-Benz engine: 011 360 141kW (192 PS)

1 - 5 - 3 - 6 - 2 - 4 $0 - 60-120-180-240-300^{\circ} \pm 0.5^{\circ} (\pm 0.75^{\circ})$

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings
(2,10-2,30)
Port closing at prestroke 2,15-2,25 m

mm (from BDC)

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	10,2+0,	1 8,6 - 8,7	0,3(0,4)		
450	5,9-6,1	1,2-1,8	0,2(0,4)		,	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

PRG che	g of slider ck Control roct travel mm 2	Full-load s Setting po rev/min 3			rev/min	Idle spec Setting p rev/min 7	-		cifications 5 Control rod travel mm	rev/min	Control rod (3)
700	15,6-16,4	700	16,0	9,2 4,0	1295-1310 1345-1375	1	6,0	450 600	min. 7,5 5,9-6,1 0 - 1, 540=2,0	-	-
	control travel	nsion a =	-	mm	Spe	ed regula	ation: At	129)5-1310 m	in 1	1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	attivery on ontrol lever p. 40°C (104°F)	Control rod stop 3a	Fuel delive	ery characteristics 36	Control		
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	red travel cm ³ /1000 strok es:/ mm 7	
1250	86,0 - 87,0 (84,0 - 89,0)	800	800	80,0 - 83,0 (78,0 - 85,0)	100	19,0-21,0 mm RW	

Checking values in brackets

Test Specifications
Distributor-type
Fuel-injection Pumps

46

WPP 001/4 VWW 2,4 c

1. Edition

E

VE 6/10 F 2400 L 116-3

0 460 406 021

supersedes company: VWW engine: 087 T

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

m

see VDT-W-460/...

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1.1 Timing device travel	1500	1,5 - 1,9	mm	0,75	
1.2 Supply pump pressure	1500	5,7 - 6,3	bar (kgf/cm²)	0,75	
1.3 Full-load defivery without charge-air pressure	600	25,5 -26,5	cm ³ /1000 strokes	0	
Full-load delivery with charge-air pressure	1500	44,0 -45,0	cm ³ /1000 strokes	0,75	3,0
1.4 Idle speed regulation	375	6,0 -10,0	cm ³ /1000 strokes	0	3,0
1.5 Start	100	min. 42,0	cm ³ /1000 strokes	0	
1.6 Full-load speed regulation	2600	10,0 -16,0	cm ³ /1000 strokes	0,75	
1.7 Load-dependent start of delivery			<u></u>		

2.1 Tirning device	n = rev/min	1200	1500	4) 5.4.6	2400	
LDA=0,7551r		0,2-1,0(0-1	,3) (1,0-2	4) 5,4-6		
2.2 Supply pump	n = rev/min bar (kgf/cm²)	600			2400 8,1-8,7	
LDA=0,75bar	Der (kgi/citi-)	3,3-3,9			0,1-0,7	
Overflow delivery	n = rev/min cm ³ /10 s	600 55-138(40	-153)	5	2400 5-138(40-15	3)
2.3 Fuel deliveries	<u> </u>		-		3. Dimer	tor assembly
Speed control lever	Rot speed rev/min	Fuel delivery cm ³ /1000 strokes		Charge-air press. bar (kgf/cm²)	Designation	and adjustment mm
End stop	2750 2600	max. 4,0	(9,0-17,0)	0,75 0,75	K	3,2-3,4
	2400	35,0-37,0	(33,7-38,3)	0,75	KF	6,3-6,6
	1500	22 5 22 5	(42,2-46,8)		MS	1,7-1,9
	* 800 600	32,5-33,5	(30,0-36,0) (23,0-29,0)		SVS	2,4
i						
switch-off					XK	21,8-23,8
mech.	2400	0			ΧĐ	9,4-12,
elektr.	400	0				
idle stop	375	2.0	(4,0-12)		Observations Manifold	-presssure
	600	max. 3,0			compensa	tor stroke
End stop	400	min. 20,0			= 4,2 mm	
•	500	max. 30,0				on at the g nut (46)

max cut-in voltage XXX min. 10 V max cut-in voltage 12V.

Testoil-ISO 4113

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 VWW 1,6 V

2. Edition

VE 4/9 F 2000 R 86

0 460 494 088

supersede 5.82 company: VWW

engine: 086-1.6 Bell

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1,1 Timing device travel	1500	2,9-3,3	mm		
1.2 Supply pump pressure	1500	4,9-5,5	bar (kgf/cm²)		
1.3 Full-load delivery without charge-air pressure	1500	33,5-34,5	cm ³ /1000 strokes		2,5(3,0)
Full-load delivery with charge-air pressure			cm³/1000 strokes		
1.4 Idle speed regulation	350	5,0-9,0	cm ³ /1000 strokes		2,5(3,0)
1.5 Start	100	min.38,0	cm³/1000 strokes		
1.6 Full-load speed regulation	2100	21,0-27,0	cm³/1000 strokes		
1.7 Load-dependent start of delivery					İ

2.1 Timing device	n = rev/min	1000	1500	2	000	
	mm	1,3-2,1(1,0-2,4)	(2,4-3,8	8) 4,6-5,4(4,3-5,7)		
2.2 Supply pump	n = rev/min bar (kgf/cm²)	400 2,1-2,7		2000 6,0-6,6		
Overflow delivery	n = rev/min 600 cm ^{3/10} s 55-138(40-153)				000 (40 - 153)	
2.3 Fuel deliveries				3. Dimen	SiONS for assembly and adjustment	
Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm²)	Designation	mm	
End stop swrtch-off	2200 2100 2000 1500 600	0,5-7,5 (0-8,0) (20,0-28,0) 27,0-29,0 (25,7-30,3) (31,7-36,3) 22,0-25,0 (20,5-26,5)		K KF MS SVS + FH	3,2-3,4 5,7-5,9 1,2-1,4 max. 2,5 1,8-2,4	
elect.	400	0		XL	6,1-8,4	
idle stop	460	max. 1,5 (3,0-11,0)		Observations		
End stop	400 500	min. 18,5 max. 24,0				
2.4 Solenoid	max. cut-in volta	e xxx min. 10,0 V rated voltage 12V.				

Testoil-ISO 4113

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 Volvo 3,6 g1 1. Edition

VE 6/11 F 1800 L 19-7 0 460 416 025

supersede5

company: VOTVO

engine: TAMD 40 B (121 kW)

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

0.2

mm ⁺0,02 (0,04)

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1.1 Timing device travel	1500	2,6-3,0	rn/m		
1.2 Supply pump pressure	1500	6,2-6,8	bar (kgf/sm²)		
1.3 Full-load delivery without charge-air pressure	1500	78,0-79,0	cm ³ /1000 strokes		3,0(3,5)
Full-load delivery with charge-air pressure	-	-	cm ³ /1000 strokes		
1.4 Idle speed regulation	400	8,5-12,5	cm ³ /1000 strokes		3,0(3,5)
1.5 Start	100	min. 60	cm³/1000 strokes		
1.6 Full-load speed regulation	1900	43,5-49,5	cm ³ /1000 strokes		
1.7 Load-dependent start of delivery	-	-			

Z. lest Spe	CITICATIONS	checking values in brackets ()			
2.1 Timing device	n = rev/min	1000	1500	2.6	1750
	mm	0,7-1,5(0,4-1,8)	(2,1-3,5)	3,6-4,4(3,3-4,	
2.2 Supply pump	n = rev/min	400		1	
	bar (kgf/cm²)	2,3-2,9		· ·	7,1-7,7
Overflow delivery	n = rev/min	600			1800
	cm ³ /10 s	55-138(40-153)		55-13	38(40-153)
2.3 Fuel deliveries				3. Dimer	SIONS
Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm²)	Designation	and adjustment mm
End stop	2130	max. 2,5			
	2050	6,5-12,5(5,0-14,0)		K	-
	1900 1770	(42,0-51,0) 72,8-75,8 (71,6-77,0)		KF	5,9-6,1
	1500	(75,8-81,2) (66,5-70,5 (65,1-71,9)		MS	1,4-1,6
	600	66,5-70,5 (65,1-71,9)		svs	max. 2,3
switch-off				x x	18,7-20,7
Switch-Oil				B	10,7-20,7
				XL	10,9-14,2
idle stop	580	0		Observations	
	500	max. 2,0	İ		
	400	(6,0-15,0)			
End stop	120	min. 60]	
<u>`</u>	220	max. 60			
2.4 Solenoid	max. cut-in volts	xxxx min. 10 V xrated voltage 12V.			

Testoil-ISO 4113

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 PEU 1,9a

1. Edition

VE 4/9 F 2300 R 114 0 460 494 112

supersedes=

company: Peugeot engine: XUD g

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

ជា៣

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1.1 Timing device travel	2000	7,8-8,2	mm		
1.2 Supply pump pressure	2000	5,9-6,5	bar (kgf/cm²)		
1.3 Full-load delivery without charge-air pressure	1250	31,5-32,5	cm ³ /1000 strokes		2,5
Full-load delivery with charge air pressure	-	-	cm ³ /1000 strokes		
1.4 Idle speed regulation	300	25,0-29,0	cm ³ /1000 strokes		3,0
1.5 Start	100	min. 45	cm ³ /1000 strokes		
1.6 Full-load speed regulation	2500	7,0-13,0	cm ³ /1000 strokes		
1.7 Load-dependent start of delivery	2000	-			

2.1 Timing device	n = rev/min mm	1000 2,0-3,0(1,8	3-3.2) 3	1250 ,4-4,2(3,1-4	1,5)	2000 (7,3-8,7)
2.2 Supply pump	n = rev/min bar (kgt/cm²)	600		1250 3,9-4,5		
Overflow delivery	n = rev/min cm ³ /10 s	600 55-111(40-	126)		5	2300 5 - 111(40-126
2.3 Fuel deliveries Speed control lever	Rot. speed	Fuel delivery		Charge-air press.	3. Dime	nsions for assembly and adjustment mm
End stop	2650 2500 2400 2250 2000 1250 600	max. 4,0	(6,0-14,0) (20,0-28,0) (25,7-30,3) (26,7-31,3) (29,7-34,3) (25,5-31,5)		K KF MS SVS	3,3 5,7-5,9 1,3-1,5 max. 4,0
switch-off					XÎK B XL	18,9-20,9 9,6-13
Idle stop	300 400 450-550	max. 10,0	(23,0-31,0)		Observations	
End stop	250 500	min. 45 max. 35				
2.4 Salencid	max. cut-in voltage	xxxx min	. 10 V			

Testoil-ISO 4113

Test Specifications
Distributor-type
Fuel-injection Pumps

46

WPP 001/4 REN 2,0 e

2. Edition

VE 4/9 F 2400 R 95 O 460 494 105 supersedes 6.82 company: Renault engine: F8 M

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

mm

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1.1 Timing device travel	1400	4,1-4,5	mm		
1.2 Supply pump pressure	1400	4,9-5,5	bar (kgf/cm²)		
1.3 Full-load delivery without charge-air pressure	1000	30,0-31,0	cm ³ /1000 strokes		2,5(3,0)
Full-load delivery with	-	-	cm ³ /1000 strokes		
charge-air pressure 1.4 (dle speed regulation	425	6,0-10,0	cm ³ /1000 strokes		2,5(3,0)
1.5 Start	100	min. 42,0	cm³/1000 strokes		
1.6 Full-load speed regulation	2650	10,5-16,5	cm ³ /1000 strokes	:	
1.7 Load-dependent start of delivery	1400	-			

2. Test Spe	cifications	checking values in b	erackets ()			
2.1 Timing device	n ≈ rev/min	1000 2,3-3,1(2,0	1400 0-3,4) (3,6-5			2400 ,0-7,7(6,6-8,0
2.2 Supply pump	n = rev/min bar (kgf/cm²)	600 2,5-3,1				2400 ,7-8,3
Overflow delivery	n = rev/min cm ³ /10 s	600 55-138(40-1	153)			2400 8(40 - 153)
2.3 Fuel deliveries					3. Dimen	for assembly
Speed control lever	Rot speed rev/min	Fuel delivery cm ³ /1000 strokes		Charge-air press. bar (kgf/cm²)	Designation	and adjustment mm
End stop	2750 2650 2500	max. 6,0 21,0-29,0	(9,5-17,5) (21,0-29,0)		K	3,2-3,4 5,7-5,9
	2400 2100 1400	26,5-29,1 27,5-29,9 30,6-32,6	(21,0-29,0) (25,5-30,1) (26,4-31,0) (29,3-33,9)		KF MS	1,2-1,4
	1000	24,3-27,3	(28, 2-32, 8)		svs	2,8
switch-off					₹K	18,7-20,7
•	2400	0			₹L	9,5-12,8
idle stop	650 600 425	0,2-5,2	(4,0-12,0)		Observations	
End stop	330 500	min. 30,0 max. 29,0				
2.4 Solenoid	mex. cut-in voltage	xxx min.	10,0 V 12V.			

Testoil-ISO 4113

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 SOF 2,5c 2. Edition

VE 4/9 F 1950 R 22-4 0 460 494 070

superseles82 company of im engine RJV-LKW

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

 $0.3 \text{ mm} \pm 0.02 (0.04) \text{ mm}$

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delive/; cm ²
1.1 Timing device travel	1800	7,4-7,8	mm		
1.2 Supply pump pressure	1800	6,2-6,8	bar (kgf/cm²)	·	
1.3 Full-load delivery without charge-air pressure	1950	33,5-34,5	cm ³ /1000 strokes		2,5(3,0)
Full-load delivery with charge-air pressure			cm ³ /1000 strokes		
1.4 Idle speed regulation	350	6,0-10,0	cm ³ /1000 strokes		2,5(3,0)
1.5 Start	100	min.55,0	cm ³ /1000 strokes		
1.6 Full-load speed regulation	2150	14,0-20,0	cm ³ /1000 strokes		
1.7 Load-dependent start of delivery					

2.1 Timing device	n = rev/min mm	400 1,9-2,7(1,6-3,0)	1100 4,9-5,5(4,5-5,9)	180 (6,9-	
2.2 Supply pump	n = rey/min bar (kgf/cm²)	400 2,9-3,5	1100 4,6-5,2		
Overflow delivery	n = rev/min cm ³ /10 s	500 55-111(40-126)		195 55-111(4	
2.3 Fuel deliveries		<u></u>		3. Dimen	for assembly
Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press bar (kgf/cm²)	Designation	and adjustment mm
End stop	2250 2150 1950 1100 600	max. 10,0 (13,0-2) (31,7-3) 37,7-40,3 (36,7-4) 30,0-33,0 (28,5-3)	6,3) 1,3)	K KF MS SVS	5,4-5,6 1,7-1,9 max.2,7 1,8-2,4
switch-off	1950	0		A B	
idle stop	500 350	max.5,0 (4,0-12	2,0)	Observations *operati	
End stop	350 480	min.32 max.34		stroke	(KSB)
2.4 Solenoid	max. cut-in voltag	min. 10 V rated volt	age 12V.		

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 VWW 1,6v1 3. Edition

VE 4/9 F 2000 R 85 0 460 494 086

6.82 company: VWW engine:

Industrie-Motor

065.5 Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel injection Pump Test Benches and Testers

Test Instructions and Test Equipment

see VDT-W-460/... Pre-stroke setting

1. Settings	Rot. speed rev/min	Settings	•	Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1.1 Timing device travel	1500	2,9-3,3	mm		
1.2 Supply pump pressure	1500	4,9-5,5	bar (kgf/cm²)		
1.3 Full-load delivery without charge-air pressure	1500	32,5-33,5	cm ³ /1000 strokes		2,5(3,0)
Full-load delivery with charge-air pressure			cm ³ /1000 strokes		
1.4 Idle speed regulation	425	6,0-10,0	cm ³ /1000 strokes		2,0(3,0)
1.5 Start	100	min. 38,0	cm ³ /1000 strokes		
1.6 F⊌II-load speed regulation	2050	9,0-15,0	cm ³ /1000 strokes		
1.7 Load-dependent start of delivery					

2. Test Spe	cifications	checking values in bra				
2.1 Timing device	n = rev/min	1000 1,3-2,1(1,0		1500 (2,4-3,8)		1,3-5,7)
2.2 Supply pump	n = rev/min bar (kgf/cm²)	600 2,8-3,4			2000 6,1-6,7	,
Overflow delivery	n = rev/min cm ³ /10 s	55-138(40-1	53)		2000 55-138(40)-153)
2.3 Fuel deliveries		1			3. Dimer	for assembly
Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes		Charge-air press. bar (kgf/cm²)	Designation	and adjustment mm
End stop	2070	max. 2,0			K	3,2-3,4
	2050		(8,0-16,0)		KF	5,7-5,9
	2000	29,0-31,0	(27,7-32,3)	MS	1,2-1,4
	1500		(30,7-35,3	1	svs	max. 2,5
	600	21,0-24,0	(19,5-25,5		+ FH	1,8-2,4
					XKA	18,4-20,4
Mech.	2000	0	•		ΧĮΒ	13,6-17,0
elektr.	400	0				
idle stop	600 425	max. 2,0	(4,0-12,0)		Observations + *oper	rating
End stop	400 500	min. 17,5 max. 23,0			stro	oke (KSB)
2.4 Solenoid	max. cut-in voltag 述被XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	xxx min.rated volta	10,0 V ge 12V.			^

Testoil-ISO 4113

Test Specifications
Distributor-type
Fuel-injection Pumps

46

WWP 001/4 VWW 1,6v4 3. Edition

<u>En</u>

VE 4/9 F 1800 R 85-1 0 460 494 107

supersedes 6.82 company: VWW engine: 638/10

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

നന

1. Settings	Rot. speed rev/min	Sertings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1.1 Timing device travel	1500	2,9-3,3	mm		
1.2 Supply pump pressure	1500	4,9-5,5	bar (kgf/cm²)		
1.3 Full-load delivery without	1500	32,5-33,5	cm ³ /1000 strokes		2,5(3,0)
charge-air pressure Full-load delivery with charge-air pressure			cm³/1000 strokes		
1.4 Idle speed regulation	425	6,0-10,0	cm ³ /1000 strokes		2,0(3,0)
1 5 Start	100	min. 38,0	cm³/1000 strokes		
1.6 Full-load speed regulation	1870	9,0-15,0	cm ³ /1000 strokes		
1.7 Load-dependent start of delivery					

Overflow delivery 2.3 Fuel deliveries Speed control lever	n /min bar (kgf/cm²) n = rev/min cm³/10 s	600 2,8-3, 600 55-138(40-			1780 5,5-6,1 1800		
2.3 Fuel deliveries Speed control lever		,	153)				
Speed control lever		<u> </u>		1800 55-138(40-153)			
	Rot speed	Fuel delivery		Charge-air press.	3. Dimen	SIONS for assembly and adjustment mm	
End stop	1950 1870 1780 1500 600	max. 2,0 29,9-31,9	(8,0-16,0) (28,6-33,2) (30,7-35,3) (19,5-25,5)		K KF MS SVS + FH	3,2-3,4 5,7-5,9 1,2-1,4 max. 2,5 1,8-2,4 18,4-20,4	
elect.	400	0			χĒ	9,7-13,1	
idle stop	600 425	max. 2,0	(4,0-12,0)		+ *oper	rating	
End stop	400 500	min. 17,5 max. 23,0			stro	oke (KSB)	

WPP 001/4 VOL 12,0 f1 2. Edition

PE 6 P 120 A 320 RS 3071

ROV 250-1025 PA 371

supersedez 81 company:Volvo

Values apply to

Testoil-ISO 4113

engine: TD 120 GA

and engine fuel-injection tubing

engine nozzle-and-holder assemblies 1 688 901 019 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,6-2,7 Port closing at prestroke mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	11,4+0,1	20,5-20,8	0,5(0,9)			
250	5,6-5,7	2,2-2,6	0,5(0,7)			

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

Upper rated:	speed			Intermediate	rated sp	eed		Lower rated	speed			Sirting .	leave travel
Degree of deflection	rev/min Control	READ /	IJ	Degree of deflection		Control (rod	Degree of deflection		Control retravel	d		0
of control	rod travel	mm rev/men (of control lever	rev/min	mm	(4)	of control	rev/min	mm	(3)	rev/min	mm
1	2	3		4	5	6		7	8	9	_	10	11
max.	1100	15,2-17,	8	-	-	-		ca.12	100	min.7	,1	250	1,1-1,2
ca.40	10,4	1065-107	75						250	5,6-5	,7		2,9-3,3
	4,0	1145-117								•		800 1025	5,1-5,4 7,2
		, ,,						③					

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ten	d stop	Rotational-speed (20) firmitation intermediate speed	Fuel delin high idle s	per characteristics (5)	Starting fuel delivery 6 ldle switching point		Torque- travel	control (5)
revimin 1	crit ³ /1000 strokes	rev <i>li</i> min 49 3	rev/min	cm ³ /1000 strokes 5	rev/min	cm ³ /1000 strokes 7	rev/min 8	travel mm
LDA 700	0,9 bar 205,0-208,0 (202,0-211,0	1065-1075*	LDA 700	0 bar 157,0-161,0 (154,0-164,0)	100	230,0-270,0 =RW 20,0- 21,0 mm	•	-

Checking values in brackets

t mm less control rod travel then col. 2

D. Adjustment Test for Manifold Pressure Compensator

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PE 6 PRS 3071 +RQV PA 371	0,57	0,90 0 0,33	11,0-11,1 11,4-11,5 9,0-9,1 9,9-10,1

Notes

(1) when n =

rev/min and gauge pressure = bar (= maximum full-load control rod travel)

WPP 001/4 VOL 12,0 f 3

1. Edition

ROV 250-1025 PA 371 PE 6 P 120 A 320 RS 3071 Y Values apply to

engine nozzle-and-holder assemblies 1 688 901 019 and engine fuel-injection tubing 1 680 750 067 COMPany:VO]VO engine: TD 120 G 213 kW (290 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres Rotational speed	Control rod	(2,55-2,75) Fuel delivery	mm (from BDC) Difference	Control rod	Fuel delivery	Saring are to asigning
rev/min	travel mm 2	cm ³ /100 strokes	cm³/ 100 strokes	travel	cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm 6
700	10,2+0,	1 17,5-17,8	0,6(0,9)			
250	5,7-5,9	2,2-2,6	0,3(0,6)			

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

Upper rated :	peed		Intermediate	rated sp	eed	Lower rated	speed		Sidion	deeve travel
deflection	rev/min Control	Control rod travel	Degree of deflection		Control rod travel	Degree of deflection		Control rod travel	J	. ①
of control lever	rod travel mm	mm rev/min 2a	of control lever	rev/min 5	mm 4	of control lever	rev/min	mm 3	rev/min	mm 11
<u>'</u>			-	-		 '	-	-	110	<u> </u>
max.	1100	15,2-17,8	-	-	-	ca.12	I .	min.7,2		0,7-0,9
ca. 42	9,2 4,0 1300	1145-1175	1				İ	15,7 - 5,9 390=2,0		2,7-3,0 4,7-5,0 6,9
						②				

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ten	d stop	Rotational-speed 2b irritation intermediate speed	Fuel delin high idle s	rery characteristics (Se peed (Se)	Starting fuel delivery idle switching point		Torque- travel	control (5)
rev/min	cft ³ /1000 strokes	rev/min 49	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min 8	travel mm
LDA 700	0,75 bar 175,0-178,0 (172,0-181,0		LDA 700	0 bar 155,0-159,0 (152,0-162,0		240,0-280,0 =RW 20,0- 21,0 mm		•

Checking values in brackets

* 1 mm less control rod travel then col. 2

D. Adjustment Test for Manifold Pressure Compensator

Test at n = rev/min decreasing pressure - in bar gauge pressure 500

VOL 12,0 f 3

	CO				
Pump/governor		Setting:		Measurement	diminution Control rod travel- difference
		Gauge pressure =	ber	Gauge pressure = bar	mm (1) .
PE 6 PRS 3 +RQVPA 371		0,29		0,75 0 0,24	9,9-10,0 10,2-10,3 9,2-9,3 9,5-9,7
				L	

Notes:

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

40

WPP 001/4 DAF 11,6 i 8 2. Edition

En

PE 6 P 110 A 320 RS 372-1 Komb.-Nr. 0 401 846 463 RQ 250/1100 PA 417-1 RQ 250/1100 PA 417 supersedes 1.82 company

engine: DKTD 1160

191 kW (260 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,0-2,9 (2.75-2.95)

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference cm ³ /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
850	11,9+0,1	13,5-13,7	0,4(0,8)			
250	6,6-6,8	0,7-1,1	0,4(0,7)			
					1	
				<u> </u>	_L	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin PRG che	g of slider	Full-load s Setting po		-	cifications (4)	ldle spec	•		cifications (5)	Torque o	control (3)
rev/min	Control rod travel mm	rev/min 3	Control red travel rnm 4	Central red travel rnm 5	rev/min		Control red travel mm 8	rev/min 9	Control rod travel mm	rev/min	travel
700	15, -16,4	700	16,0		1145-1160 1220-1250 0 - 1,0		6,7	250	min.7,8 6,6-6,8 300 = 2,0		12,0-12,1 11,9-12,1

Torque-control travel on flyweight assembly gimension a =

mm

1145-1160 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop 3a	Fuel delive	ery characteristics 36	Starting fi	uel delivery d
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes	rev/min	red travel cm ³ /1000 strokes/mm
LDA 850	0,7 bar 134,5-136,5 (132,0-139,0)	-	LDA 600	0 bar 125,0-128,0 (122,0-131,0)	100	245,0-285,0 = 19,5-21,0 mm RW

Checking values in brackets

3.83

BOSCH

D. Adjustment Test for Manifold Pressure Compensator

Test at n =

600

rev/min decreasing pressure – in bar gauge pressure

DAF 11,6 i 8 - 2 -

000			
Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PE6PRS372-1	0,30		11,8 - 11,9
+PA417-1		0,70	1 1,9 - 12,0
or •PA 417		G	11,3 - 11,4
		0,26	11,5 - 11,7

Notes.

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

WPP 001/4 IHC 13,4

1. Edition

PES 6 P 110 A 420 LS 3043

RSV 350-1100 PO/431 DR

supersedes

Komb.-Nr. 0 402 076 712

company DTI 817 C 309 kW (420 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15)

mm (from BDC)

Rotational speed	Control rod	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm (2)	cm ³ /100 strokes	cm ³ / 100 strokes	m:m	cm=/100 strokes	mm
1	2	3	14	2	3	6
1100	15,4+0,1	25,8-26,0	0,8			
300	5,6-5,8	0,7-1,2	0,4			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Uppe	r rated speed	rev/min	Interme	ediate rate	d speed	4	Lowe	r rated speed	(3) To	rque control
Degree of deflection of control lever 1	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control- lever deflection in degrees 7	rev/min 8	Control rod travel mm	rev/min	Control rod travel mm
loose	800	0,3-1,0	-	•	•	ca. 20	350	5,5	1080	0
ca. 4		15,6-16,2					100 350 410	20,0-21, 5,4-5,6 1,3-2,0	500	0,9-1,1 0,9-1,1
2 a	1200 1280	6,0-9,2 1,3-2,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Fu	ill-load stop	Rotational- speed limitat 3a Fuel delivery characteristics			Starting fuel delivery 5 4a Idle stop			
Test oil te	cm ³ /1000 strokes	Note: changed to) rev/min	rev/min	cm³/1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel
1	2	3	4	5	6	7	8	9
LDA 1100	1,2 bar 257,5-259,5 (254,5-262,5)		LDA 700	1,2 bar 284,5-288,5 (281,5-291,5)	100	255,0-29	5,0	
			LDA	0 bar 151,5-155,5 (148,5-158,5				

Checking values in brackets

* 1 mm less control rod travel than col. 2

3.83

D. Adjustment Test for Manifold Pressure Compensator

IHC 13,4 d - 2 -

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	diminution Control rod travel- difference mm (1)
PES 6 P LS 3043 + RSVPO/431 DR	0,09-0,17	0,80-0,93	Start End
	٠		

Notes.

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

WPP 001/4 MB 21,9 b 1 1. Edition

PE 12 P 120 A 320 LS 3819-2 ROV 350-1050 PA 493

1-5 -9 - 8 - 3 - 4 -11-10 - 2 - 6 - 7 - 12

0-15-60-75-120-135-180-195-240-255-300-315° ±0,5° (±0,75°) engine 357 kW (485 PS)

Values apply to

Testoil-ISO 41

engine nozzle-and-holder assemblies 1 688 901 019

and engine fuel-injection tubing 1 680 750 067
All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

supersedes Daimler-Benz COMPAGE A

> Komb.-Nr. 0 401 840 711

A. Fuel Injection Pump Settings

mm (from BDC) 7,1 12

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm 2	cm ³ /1 00 strokes 3	cm ³ / 100 strokes 4	mm 2	cm ³ /100 strokes 3	mm 6
1050	10,2+0,	1 15,1-15,3	0,5(0,8)			
350	4,6-4,	8 1,2-1,8	0,8(1,2)		,	
			1			

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

Upper rated s	peed		Intermediate	rated sp	eed	Lower rated speed Sliding sleev			leeve travel	
Degree of deflection of control	rev/min Control rod travel	Control rod travel mm cav/min 2a	of control	rev/min	Control rod travel mm	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 3 9	rev/min	mm 11
max.	1150 9,2 4,0 1350	15,2-17,8 1080-1090 1175-1205 0 - 1,0	-	-	-	ca.10 360-500	100 350	min.6,2 4,6-4,8	550	0,9-1,1 3,4-3,6 4,7-4,9 6,8

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-rod Test oil ten		Rotational-speed (2b) limitation intermediate speed			Starting Idle switchir		Torque-control (travel Control travel	
rev/min	cm³/1000 strokes	rev/min 49	rev/min	cm ³ /1000 strokes 5	rev/min	cm ³ /1000 strokes 7	rev/min 8	mm 9
LDA 1050	0,6 bar 151,0-153,0 (148,0-156,0)	1080-1090*	LDA 1050 ** LDA 500	0,6 bar 120,0-123,0 (117,0-126,0 0 bar 124,0-126,0 121,0-129,0		130,0-150,0	-	•

Checking values in brackets

* 1 mm less control rod travel than col 2

Set at the reduced-delivery stop.

BOSCH

D. Adjustment Test for Manifold Pressure Compensator

MB 21,9 b 1 - 2 -

Test at n =

500

rev/min decreasing pressure – in bar gauge pressure increasing

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PE 12 PLS3819-2 +ROVPA 493	0,28	0,60 0 0,24	9,9-10,0 10,2-10,3 9,4-9,5 9,6-9,8

Notes:

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

WPP 001/4 KHD 1 g 3 3. Edition

En

PES 4 A 85 D 410/3 RS 2638

RSV 325-1150 A 8 B 2168 Lcompany: KHD

supersedes1.82

Komb.-Nr. 0 400 864 054

Port closing at prestroke

BF 4 L 913 T 66 kW (90 PS)_1 2300 min

DX 92 (1) Tractor

60 kW (82 PS)

2300 min

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

mm (from BDC)

144	~ ~	\
DX	86	(2)
		DX 86

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery (2)	Spring pre-tensioning (torque-control valve)			
rev/min 1	mm 2	(1) cm ³ /100 strokes	cm ³ / 100 strokes	mm 2	cm ³ /100 strokes	mm 6			
1150	11,8+0,1	8,2 - 8,3	0,3(0,45	10,6+0	1 7,5-7,6				
325	7,7-7,9	1,0 - 1,6	0,2(0,4)	7,7-7,9	1,0-1,6				
				ļ					

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

Upper rated speed			Intermediate rated speed			4 Lower	rated spe	3 Torque control		
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	•	ca. 26	325	7,3	1150	11,8+0,
10030	X = 4,0						100 325	min. 19, 7,7-7,9		11,3+0, 12,0+0,
ca.54	10,8 4,0 1495	1190-1200 1325-1355 0,3-1,7	:				720-7			

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-los	ad stop	6 Rotational- speed limitat.		delivery racteristics	Starting Idle	fuel delivery	5a Idle stop		
Test oil temp. 40°C (104°F) rev/min cm³/1000 strokes 1 2		Note: changed to rev/min 3	rev/min	cm ³ /1000 strokes 5	rev/min cm³/1000 strokes 6 7		rev/min 8	Control rod travel mm 9	
1150	82,0-83,0 (80,6-85,0)	1190-1200*	800	74,5-77,5 (72,5-79,5)	100	108,5-118,5 = RW 17,3 - 17,9 mm	-	-	

Checking values in brackets

* 1 mm less control rod travel than col 2

3.33

Testoil-ISO 4113

B. Governor Settings

			Intermediate rated speed			(<u>•</u>)		rated speed Control rod	Torque control Control rod	
deflection	Control rod travel	travel				Control- lever deflection	rev/min	travel mm		travel mm
of control lever	mm 2	mm rev/min 3	4	5	6	in degrees 7	8	9	10	11
loose	800	0,3-1,0	-	-		ca.26	325	7,0	1150	10,5+0,1
	x =	4,0					100	min.19,0	500	11,2+0,1
ca.56	9,6	1220-1230					325	7,4-7,6	900	10,9+0.3
22	4.0 1475	1325-1355 0,3-1,7	•				720-780	= 2,0		

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		Speed minrar	3 € ch	el delivery paracteristics	Starting f	uel delivery 5	Idle stop	
1	np. 40°C (104°F) Note: changed cm³/1000 strokes rev/min 2 3	changed to)	rev/min	cm ³ /1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	travel mm 9
(2) 1150	74,5-75,5 (72,5-77,5)	1220-1230*	800	65,5-68,5 (63,5-70,5)	100	108,5-118,	5 -	-

Checking values in brackets

Testoil-ISO 4113

* 1 mm less control rod travel than col. 2

B. Governor Settings

1 Uppe	1)				speed	Lower rated speed			Torque control		
Degree of deflection of control lever	travel mm	Control rod travel mm rev/min		5	6	Control- lever deflection in degrees 7	rev/min	travel mm	rev/min	travel mm 11	
	2			<u> </u>	<u></u>						
29								·			

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load stop Test oil temp. 40°C (104°F)		speed timitat.				uel delivery 5	Gontrol root travel		
rev/min	cm³/1000 strokes	rev/min	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	9 9	
			Ì		ļ				
				•	1				
						, ,			

Checking values in brackets

* 1 mm less control rod travel than col. 2

WPP 001/4 KHD 6,1 a 1 3. Edition

PES 6 A 85 D 410/3 RS 2415

RS 325/1325 AOB 691 DL 709 DL supersedes 82 company: KHD

Test RS governor according to WPP 001/4 KHD 1 c.

engine: BF6 L 913 110 kW (150 PS) 2650 min

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

mm (from BDC)

Control Control	11	<u>.85-2,05)</u>	11 (11.01.11.000)	·		
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	cm ³ / 100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1325	12,0+0,1	8,7 - 8,8	0,3(0,45)			
325	8,2-8,4	1,4 - 2,0	0,2(0,4)			
				İ		
!	<u> </u>	<u> </u>		<u> L</u>	<u> </u>	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper	rated speed		Intermediate	rated spe	ed	4 Lowe	r rated spe	ed	3 Tor	que control
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	Control rod travel
1	2	3	4	5	6	7	8	9	10	11
100se	800	0,3-1,0	-	-	-		325	6,5		12,0+0,1 12,5+0,2
	X =	7,0					100 325	min.16,0 6,4-6,6		12,1+0,2
68.68	11,0 4,0 1600	1355-1365 1450-1480 0,3-1,7		·			500	3,4-4,0 370=2,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-1	oad stop	6 Rotational- speed limitat.	6 Rotational- speed limitat. 3a Fuel delivery characteristics			fuel delivery	5a Idle stop	
Test oil ten rev/min 1	np. 40°C (104°F) cm³/1000 strokes 2	Note: changed to rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1325	0,7 bar 86,5-87,5 (84,5-89,5)	1355-1365*	LDA 500 LDA 800	0 bar 56,0-58,0 (53,5-60,5) 0,7 bar 76,5-78,5 (74,0-81,0)	100	15,0-16,0 mm RW	-	-

Checking values in brackets

^{* 1} mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

KHD 6,1 a 1 - 2 -

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PES 6 ARS 2415 +AOB 691 DL +AOB 709 DL	0,27	0,70 0,37 0	11,6 - 11,8 12,5 - 12,7 12,2 - 12,3 11,3 - 11,5

Notes:

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Testoil-ISO 4113

WPP 001/4 KHD 4.7 c

2. Edition

RS 325/1650 A 0 B 2087 L

supersede 10.82

company: KHD

engine: F 5 L 912 63 kW (85 PS) 3000 min

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

PES 5 A 80 D 410/3 RS 2603

Rotational speed		1,85-2,05) Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm 2	cm ³ /100 strokes	cm ³ / 100 strokes	mm 2	cm ³ /100 strokes	mm 6
1500	9,9-10,0	5,1 - 5,2	0,2(0,35)			
325	8,7-8,9	1,7 - 2,1	0,2(0,3)	[-
		ļ				

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

Upper	rated speed		Intermediate	rated spe	ed	4 Lower	r rated spe	ed	3 Tor	que control
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	VH max	325	8,8	-	-
						FHca.18	100 325	min.13,6 8,7-8,9		
VH ca.4	9 8,9	1690-1700	<u>;</u>					590 =2,0		
∰ max.	4,0 1900	1740-1770 0 - 1,0	1				600	max.1,8		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-to:	ed stop	6 Rotational- speed limitat.		i delivery tracteristics	Starting Idle	fuel delivery	Sa idk	e stop
Test oil temp rev/min 1		Note: changed to rav/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1500	50,5-51,5 (49,0-53,0)	1690-1700*		•	-	-	-	•

Checking values in brackets

* 1 mm less control rod travel than col. 2

3.33

Test Specifications Fuel Injection Pumps ② and Governors

4(

wpP 001/4 MB 18,3 e 2. Edition

<u>En</u>

PE 10 P 120 A 320 LS 3824 RQ 300/1050 PA 656 1-8-7-6-3-5-2-10-9-4 0-27-72-99-144-171-216-243-288-315° ± 0,5° (± 0,75°) Values apply to engine nozzle-and-holder assemblies 1 688 901 019 and engine fuel-injection tubing 1 680 750 067 supersedes 10.82
company: Daimler-Benz

company: OM 423 LA

346 kW (470 PS) Euclid

Komb.-Nr. 0 401 849 707

All test specifications are valid for Boach Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

 $4,0^{\circ}-4,1$ (3,95-4,15)

mm (from BDQZy1. 10

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1050	11,3+0,1	17,7-17,9	0,5 (0,8)			
300	5,0-5,2	1,6-2,2	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin	g of slider	Full-load	speed re	gulation		Idle spec	ed regula	ation	_	Torque o	_
PRG che	ck Control rod	Setting p	oint Central	Test spe	cifications (4)	Setting s	coint Control	Test spe	cifications 5		Control rod
rev/min 1	travel	revimin 3	red travel mm	red travel rinno 5	rev/min 6	rev/min 7	loved has	rev/min 9	travel mm	rev/min 11	travel mm
600 VH =	19,2-20,8 max. 46°	600	20,0	10,3 4,0 1300	1095-1110 1165-1195 0-1,0		4,3	300	min. 5,8 4,2-4,4 75 = 2,0	-	-
	ontroi travai						10	 95-11	O min-1		1 mm less contr

Torque-control travel on flyweight assembly dimension a =

nm

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	control lever np. 40°C (104°F)	Control rod stop 3	Fuel deliv	ery characteristics	Starting findle spee	tuel delivery
rev/min 1	cm ³ /-1000 strokes 2	rey/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min	rad travel cm ³ /1000 strokes:// mm 7
LDA 1050	0,9 bar 177,0-179,0 (174,0-182,0)	•	LDA 600 LDA 500	0,9 bar 173,0-179,0 (170,0-182,0) 0 bar 141,0-143,0 (138,0-146,0)	100	150,0-170,0

Checking values in brackets

3.83

BÒSCH

D. Adjustment Test for Manifold Pressure Compensator

MB 18,3 e

-2-

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PE 10 PLS 3824	0,90		11,3 - 11,4
+ RQPA 656		0	10,2 - 10,4
		0,41	10,9 - 11,1
		0,35	10,5 - 10,6
		,	
	·		

Notes:

(1) when n =

rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps 2 and Governors

WPP 001/4 MB 11.4 i

Edition

PES 6 P 120 A 820 LS 3077 Values apply to engine nozzle-and-holder assemblies 1 688 901 019

and engine fuel-injection tubing

RQ 300/1100 PA 585

1 680 750 067

superseded 1.81 company: Daimler-Benz OM 407 LA

235 kW (320 PS)

Komb.-Nr. 0 402 046 722

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

estoil-ISO 411

(3.95-4.15)

mm (from BDQ)y1. 6

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes	Control rod travei mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	13,4+0,1	21,2 - 21,4	0,5 (0,9)			
300	5,5-5,7	1,4 - 2,0	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Control rod travel rev/min 1	Chection PRG che	g of slider ack (1)	Full-load s	•	-	cifications (4)	idle spec	-		critications (5)	Torque d	control (3)
4,01200-1230 300 4,8-5,0	r ev/ min 1	travel		red travel	ार्थ्य स्थान	rev/min 6	rev/min 7	met basel	ł _	travel mm	rev/min 11	travel mm
	650	19,2-20,8	650	20,0	12,4 4,0	1145-1160 1 200 -12 3 0	300		300	4,8-5,0		-

Torque-control travel on flyweight assembly dimension a =

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	letivery on control lever mp. 40°C (104°F)	Control rod stop	Fuel deliv	ery characteristics 36	Starting fi Idle spec	Control
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	revimin 6	rad travel cm ³ /1000 strokes / mm 7
LDA 1100	0,70 bar 212,0 - 214,0 (209,0 - 217,0)		LDA 600 LDA 500	0,70 bar 205,0 - 211,0 (202,0 - 214,0) 0 bar 146,0 - 148,0 (143,0 - 151,0)	100	170,0 - 190,0

Checking values in brackets

3.83

D. Adjustment Test for Manifold Pressure Compensator

MB 11,4 i -2-

Test at n =

decreasing pressure – in bar gauge pressur decreasing pressure – in bar gauge pressur

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PE 6 P LS 3077 + PA 585	0,70	0 0,42 0,31	13,4-13,5 10,7-10,8 12,6-12,7 11,4-11,5

Notes:

(1) when n =

rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Testoil-ISO 4113

PES 6 P 110 A 720 LS 360

RO 250/1100 PA 335 DR RQV 250-1050 PA 373 DR

supersedes - 79 (1) company: MAN (2)

D 2566 MTUH

(1 - 206 kW - 280 PS Nr. 7059)

(2 - 202 kW - 275 PS Nr. 7999)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(2,95-3,15)

mm (from BDC# RW 9,0 - 12,0 mm; Zyl. 6

	_ y				· · · · · · · · · · · · · · · · · · ·	~. ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	12,1+0,	14,6 - 14,8	0,4(0,8)	12,0+0,1	14,9 - 15,1	n = 1050
250	6,8-7,0	1,1 - 1,7	0,4(0,7)	6,8-7,0	1,1 - 1,7	
700/500		С	0,6(1,0)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

RQ.. 335 DR (1)

Checking PRG che	(',					idle spec Setting p	-		cifications 5	Torque control Control rod		
rev/min 1	Control rod travel mm 2	rev/min 3	red travel rmm 4	Central red travel rnm 5	rev/min	rev/min 7	levert ben	rev/min 9	travel	rev/min	travel	
600	19,2-20,8	600	20,0	11,1	1145-1160 1200-1230	i	6,9	100 250	min. 8,5		12,1-12,2 12,3-12,5	
HV =	max. 46°			1350	0 - 1,0	i		I	410 =2,0	800	12,6-12,8 12,8-12,9	
	L	<u> </u>				<u> </u>	<u> </u>		<u> </u>			

Torque-control travel

0,3

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	Blivery on ontrol lever	Control rod stop 3a	Fuel delive	ery characteristics 3b	Starting fuel delivery Idle speed		
rev/min	cm ³ /-1000 strokes	rev/min 3	rev/min	cm ³ /-1000 strokes 5		-over point Commind travel cm ³ /1000 strokes/mm	
(1) 1100	LDA 0,7 bar 146,0-148,0) (143,5-150,5)		LDA 500	0,2 bar 123,0 - 127,0 (120,0 - 130,0)	100	215,0 - 235,0	
700	157,0-161,0 (154,0-164,0)		LDA 500	0 bar 111,0 - 113,0 (108,0 - 116,0)	100-	170 (80-190)	

Checking values in brackets

2.83

Upper rated	speed			Intermediate	ed	Lower rated	speed	L	Stiding sleeve travel		
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	(1a) (2a)	Degree of deflection of control lever	rev/min	Control rod travel mm 4	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 3	rev/min 10	mm 11
max.		15,2-17	,8	-	-	-	ca.16		min.8,5 6,8-7,0 580 =2,0	800	0,9-1,1 5,3-5,5
ca.66	11,1 4,0 1400	1090-110 1205-123 0 - 1,	35				39			1150	8,3

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-roo Test oil ten		Rotational-speed (2b) limitation intermediate speed	character high idle s	ristics	Starting Idle switchin	fuel delivery 6	Torque-d travel	Control rod
rev/min	cm³/1000 strokes	rev/min (4a)	rev/min	cm ³ /1000 strokes	rev/min	cm4/1000 strokes 7	rev/min 8	mm 9
(2) 1050	LDA 0,7 bar 148,5-150,5 (146,0-153,0		LDA 500	0,2 bar 123,0-127,0 (120,0-130,0)		215,0-2 5,0		12,0+0 12,2+0
700	153,0-157,0 (150,0-160,0		LDA 500	0 bar 111,0-113,0 (108,0-116,0)		-170 (80-190)	[]	12,6+0

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

D. Adjustment Test for Manifold Pressure Compensator

Testat n =

rev/min increasing pressure – in bar gauge pressure

Pump/governor	Setting	Measurement	Control rod travel- XXX対策東東nce
	Gauge pressure = bar	Gauge pressure = bar	mm
360 + 335 DR	0,70	0,32 0,20 0	12,8 - 12,9 12,2 - 12,4 11,5 - 11,6 10,9 - 11,0
360 + 373 DR	0,70	0,32 0,20 0	12,6 - 12,7 12,2 - 12,4 11,4 - 11,5 10,9 - 11,0

En

Test Specifications Fuel injection Pumps 2 and Governors

WPP 001/4 DAF 8,3 k 2

1. Edition

PE 6 A 95 D 410 RS 2525

RQ 225/1200 AB 1156 L

Specifications apply to test tubing 1 680 750 015

supersectes company.AF engine: DH 825

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pymp Settings

Port closing at prestroke (1.95-2.15)

		(1,00 0,10)				
Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm ³ / 10G strokes	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1200	10,4+0.		0,35(0,6)			
225	5,7-5,	9 0,6-1,0	0,35(0,55)		
		ł	1		1	1

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin PRG che	g of slider ck (1)	Full-load : Setting po	•	_	cifications (4)	Idle spec			cifications (5)	Torque d	control 3
rev/min 1	Control rod travel mm	rev/min 3	Control red travel mm 4	Central red travel mm 5	rev/min	rev/min 7	Control red travel mm 8	rev/min 9	Control rod travel	rev/min	travel
650 VH=	19,2-20,8 max. 46°	650	20,0	_	1245-1260 1300-1330 0-1,0	225	6,1	225 3 4 5-	min. 7,5 6,0-6,2 385=2,0 max. 1,0	650 1035	10,4-10,5 11,1-11,2 10,7-10,9 10,5-10,8
Torque c	ontrol travel		0,2	5			12	 245 - 12	260 min 1		1 mm less contro

Speed regulation: At

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on control lever np. 40°C (104°F)	Control rod stop 3a	Fuel delivery characteristics			Starting fuel delivery Idle speed		
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /~1000 strokes 5		rev/min 6	cm ³ /1000 strokes / mm 7	
1200	73,0-75,0 (71,0-77,0)		800	74,5-77,5 (72,0-80,0		100	121,5-131,5 = 19,5-21,0 mm RW	

Checking values in brackets

rod travel

Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 KHD 6,1 K 2

2. Edition

PES 6 A 85 D 410 RS 2592

RQV 300-1250 AB 1158 L

Komb.-Nr. 0 400 846 497

supersede9.82
company: KHD
engins: BF 6 L 913
GMC vehicle
118 kW (160 PS)
/ 2500 min-1

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Rotational speed	Control rod travel	Fuel delivery	Difference cm ³ /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min 1	mm 2	cm ³ /100 strokes 3	100 strokes	mm 2	cm³/100 strokes	mm 6
1250	12,5+0,1	8,4-8,5	0,3 (0,45)			
300	8,3-8,5	1,0-1,6	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed			Intermediate	rated sp	eed		Lower rated	speed	•	Slidings	leeve travel
deflection	rev/min Control rod travel mm	Control rod travel mm rev/mm	(3)	Degree of deflection of control lever	rev/min	Control of travel	od ④	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	mm (1)
1	2	3		4	5	8		ļ ′	8	'9 '	10	11
max.	1290	15,2-17	,8	-	-	-		ca.17		min.10,2 3,3-8,5		0,5-0,8 3,6-3,7
ca. 66		1290-13 1375-14 0 - 1						450-575		, ,		5,3-5,4 8,1
								<u></u>				

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load of Control-ro Test oil ter		Rotational-speed 20 limitation	Fuel deli- high idle :	very characteristics(5a) speed (5b)	Starting Idle switchir	• 0	Torque- travel	control (5)
rev/min	crh³/1000 strokes	rev/min 40	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	travel mm
LDA	0,7 bar	1290-1300*	LDA 800	0,7 bar 80,5-82,5	100	102,0-112,0		12,5+0, 13,2+0,
1250	83,5-84,5 (81,5-86,5)			78,0-85,0)		21,0 mm RW	1000	13,2+0, 12,9+0,
	(0.,3-60,3)		LDA 500	0 bar 59,0-6 1,0 (56,5-63,5)			1100	12,7+0,

Checking values in brackets

* 1 mm less control rod travel than col. 2

3.83

D. Adjustment Test for Manifold Pressure Compensator

KHD 6,1 k 2 - 2 -

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure ≃ bar	Gauge pressure = bar	mm (1) .
PES 6 ARS 2592	0,70		13,2 - 13,3
+ RQVAB 1158 L		0	11,8 - 11,9
		0,48	12,8 - 12,9
		0,33	11,9 - 12,1

Notes.

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

WPP 001/4 STE 4,0a 3

2. Edition

VA 4/90 H 1200 CR 164 0 460 394 010

supersed 82 company Steyr engine. WD 408.40

Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers Test Intructions and Test Equipment

Pre-setting see reverse side

VDT-WPP 161/4 B

Pre-stroke setting

Testoil-ISO 4113

 $0.3 \text{ mm} \pm 0.02 (\pm 0.04)$

1. Settings	rev/min	Settings		Charge-air press kp/cm²	Difference in delivery cm ³
1 1 Timing device travel	900	2,2-3,0	mm		
1.2 Supply pump pressure	900	4,8-5,3	kp/cm²		•
1.3 Full-load delivery without charge-air pressure	1200	62,0-63,0	cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure			cm ³ /1000 strokes		
1.4 idle speed regulation	300	10,0-16,0	cm ³ /1000 strokes		3,0
1 5 Start (autom.)	100	mind.75,0	cm ³ /1000 strokes		
1.6 Full-load speed regulation	1280	31,0-39,0	cm ³ /1000 strokes		

2. Test Sp	ecificat	IONS Checking values in brackets		
2.1 Timing device	rev/min	590-700(560-730)	900	920-1050
	mm	Start	(1,9-3,3)	2,9-3,6(2,6-3,9)
2.2 Supply pump	rev/min	200	900	1200
	kp/cm²	1,5-2,0(1,3-2,2)	(4,6-5,5)	5,6-6,1(5,4-6,3)
Overflow delivery	rev/min	500		1200
	cm ³ /10 s	55-100(40-110)		55-100(40-110)

_	_	_	
2	3	Fuel	deliveries

Speed control lever	Dalivery lever	rev/min	cm ³ /1000 strokes		Charge-air pressure kp/cm²
End stop	Full	1330-1400 (1310-1420) 1280	0	(30,0-40,0)	·
		1200 900 500		(61,5-63,5) (59,0-63,0) (55,0-61,0)	
	Stop	1200	0		
idle stop	Full	400-470 (380-490) 300	0	(9,0-17,0)	
	Start	100	mind. 75,0		
End stop				•	

Angle to the stop-plate	Pre-setting dimensions
Pump a = 25 ± 4° b = 45 ± 8° v = 30 - 8° d = 60 + 8°	Pump Dimension IV 3,5 mm Dimension V 24,6 mm
	·

Fo

Test Specifications Distributor-Type Fuel Injection Pump

WPP 001/4 IHC 5, 8 q 5 2. Edition

VA 3/10 H 1200 CR 409 CR 409 P

0 460 303 156

Testoil-ISO 4113

supersedes

company

D 159/53 HP

engine

Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers Test Intructions and Test Equipment

VDT-WPP 161/4 B

Pre-setting see reverse side

Setting of the pointer at a stroke of 1 mm in relation to outlet "A".

1. Settings	rev/min	Settings		Charge-air press kp/cm	Difference in delivery cm ³
1.1 Timing device travel	1000	4,8-5,8	mm		
1.2 Supply pump pressure	1000	5,6-6,1	kp/cm ²		
1.3 Full-load delivery without	800	72,5-73,5	cm ³ /1000 strokes		2,5
charge-air pressure Full-load delivery with charge-air			cm³/1000 strokes		
pressure 1.4 idle speed regulation	375	12,0-18,0	cm ³ /1000 strokes	! !	3,0
1 5 Start	100	mind. 90,0	cm ³ /1000 strokes		
1.6 Full-load speed regulation	1300	26,0-34,0	cm ⁻ /1000 strokes		

2. Test Sp	ecification	ONS Checking values in brackets	1000	1200
2.1 Timing device	rev/min mm	Start 1,0-2,0 (0,7-2		6,1-6,8 (5,8-7,1) 1200
2.2 Supply pump	rev/min kp/cm²	1,7-2,2 (1,5-2,4)	(5,4-6,3)	6,3-6,8 (6,1-7,0)
Overflow delivery	rev/min cm ³ /10 s	500 55-100 (40-110)		1200 55-100 (40-110)

·	cm ³ /10 s	55-100 (40-	-110)		55-100 (40-110)
23 Fuel deliveries					
Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes		Charge-air pressure kp/cm ²
End stop	Full	1340-1400 (1320-1420) 1300 1180 800 500	0 76,5-79,5 70,0-74,0	(25,0-35,0) (75,5-80,5) (72,0-74,0) (69,0-75,0))
	Stop	1200	0		
idle stop	Full	420-470 (400-490) 375	0	(11,0-19,0)	
	Start	100	mind. 90,0		

Angle to	the stop-plate	Pre-setting dimensions
Pump c β Y δ	25 ± 4° 50 ± 8° 30 - 8° 60 + 8°	Pump Dimension IV — MM Dimension V 24,65 MM

WPP 001/4 IHC 5,8 q 4 Edition

VA 6/10 H 1200 CR 408 CR 408 P 0 460 306 250

Festoil-ISO 4113

8.81 supersedes IHC company D 358

engine

Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Test Intructions and Test Equipment **VDT-WPP 161/4 B**

0,3 Pre-stroke setting of the pointer at a stroke of 1 mm in

Pre-setting see reverse side relation_to outlet "A".

1. Settings	rev/min	Settings		Charge-air press kp/cm²	Difference in delivery cm ³
1.1 Timing device travel	1000	4,1-4,9 mm	mm		
1.2 Supply pump pressure	1000	5,7-6,2	kp/cm²		
1.3 Full-load delivery without charge-air pressure	800	66,5-67,5	cm ³ /1000 strokes	Ì	2,5
Full-load delivery with charge air pressure			cm ³ /1000 strokes		
1.4 Idle speed regulation	350	12,0-18,0	cm ³ /1000 strokes		3,0
1 5 Start	100	mind. 90,0	cm ³ /1000 strokes		
1 6 Full-load speed regulation	1280	28,0-36,0	cm ³ /1000 strokes		

2. Test Sp 2.1 Timing device	ecification rev/min	Checking values in brackets 600 1,3-2,3 (1,1-2,5)	1000 (3,8-5,2)	1200 5,2-5,9 (4,9-6,2)
22 Supply pump	rev/min kp/cm²	200 1,7-2,2 (1,4-2,5)	1000 (5,5-6,4)	1200 6,4-6,9 (6,2-7,1)
Overflow delivery	rev/min cm ³ /10 s	500 55-100 (40-11 0)		1200 55-100 (40-110)

23	Fuel	deliveries
----	------	------------

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes		Charge-air pressure kp/cm²
End stop	Full	1320.1380 (1300-1400)	0		•
		1280 1150 800 500	68,0-71,0 59,5-63,5	(27,0-37,0) (67,0-72,0) (66,0-68,0) (58,5-64,5)	
	Stop	1200	0		
idle stop	Full	500-550 (480-570)	0		
		350		(11,0-19,0)	
	Start	100	mind. 90,0		
		İ	1	•	

Angle to the stop-plate	Pre-setting dimensions
Pump a 25 ± 4° B 51 ± 8° V 30 - 8° δ 60 + 8°	Pump Dimension IV = - mm Dimension V = 24,65 mm

Test Specifications Distributor-Type Fuel Injection Pump

46

WWP 001/4 IHC 5,8 q 8 1. Edition

VA 6/10 H 1150 CR 87-3 0 460 306 260

2 Test Specifications

supersedes THC company D 358 engine

Nozzle-and-holder assembly 1 688 901 020 (172 + 3 bar)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers Test Intructions and Test Equipment VDT-WPP 161/4 B

Pre-setting see reverse side

Pre-stroke setting 0.4 mm
Setting of the pointer at a stroke of 1 mm in relation to outlet "A".

1. Settings	rev/min	Settings		Charge-air press. kp/cm²	Difference in delivery
1.1 Timing device travel	700	2,4-3,2	mm		
1.2 Supply pump pressure	700	4,9-5,4	kp/cm²		
1 3 Full-load delivery without charge-air pressure	700	69,5-70,5	cm ³ /1000 strokes		3,0
Full-load delivery with charge-air	-	-	cm ³ /1000 strokes		
pressure 1.4 Idle speed regulation	400	16,0-22,0	cm ³ /1000 strokes		3,0
1.5 Start	100	min. 70,0	cm³/1000 strokes		
1.6 Full-load speed regulation	1200	36,0-44,0	cm ³ /1000 strokes		

ev/min sp/cm²	200 2,1-2,6(1,9		700	4450
		9-2,8)	(4,7-5,6)	1150 6,6-7,1(6,4-7,3)
ev/min cm ³ /10 s				
Delivery lever	rev/min	cni³/1000 strokes		Charge-air pressure kp/cm²
Full	1250-1300	0		•
	1200		(34,0-46,0)	
	1150	70,0-73,0	(69,0-74,0)	
	700		(69,0-71,0)	
	500	66,0-70,0	(65,0-71,0)	
Stop	1150	o		
Full	530-580	0		
	400		(14,0-24,0)	
Start	100	min.70,0		
	Delivery lever Full	Delivery lever rev/min Full 1250-1300 1200 1150 700 500 Stop 1150 Full 530-580 400	Delivery lever rev/min	Delivery lever rev/min cni³/1000 strokes Full 1250-1300 0 1200 (34,0-46,0) 1150 70,0-73,0 (69,0-74,0) 700 (69,0-71,0) 500 66,0-70,0 (65,0-71,0) Stop 1150 0 Full 530-580 0 400 (14,0-24,0)

F7

BOSCH

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Angle to the stop-plate	Pre-setting dimensions
Pump a = 25 ± 4° b = 42 ± 8° v = 30 - 8° b = 60 + 8°	Pump Dimension N= 3,8 Dimension V= 24,65 mm

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 VWW 2,0 b 1

3. Edition

VE 5/10 F 2400 L 45 (P) 0 460 405 005;

supersedes 6.82 company: VW/Volvo 069.3

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

6

Testoil-ISO 4113

0,14

± 0,02 (0,04)

see VDT-W-460/...

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1.1 Timing device travel	1400	2,4-2,8	mm		
1.2 Supply pump pressure	1400	5,0-5,6	bar (kgf/cm²)		
1.3 Full-load delivery without charge-air pressure	1400	33,5-34,5	cm ³ /1000 strokes		2,5 (3,0)
Full-load delivery with charge-air pressure	-	-	* cm³/1000 strokes		
1.4 idle speed regulation	375	6,0-8,0	cm ³ /1000 strokes		2,5 (3,0)
1.5 Start	100	min.53,0	cm ³ /1000 strokes		
1.6 Full-load speed regulation	2500	21,0-27,0	cm ³ /1000 strokes		
1.7 Load-dependent start of delivery	-	-			

2. Test Specifications		checking values in brackets ()	
2.1 Timing device	uw u = usv/min	1000 · 1,3-2,1(1,0-2,4)	1400 (1,9-3,3)	2400 5,1-5,9(4,8-6,2)
2.2 Supply pump n = rev/min ber (kgf/cm²)		500 2,8-3,4		2400 7,4-8,1
Overflow delivery	n = rev/min cm ³ /10 s	500 55-138(40-153)		2400 55-138(40-153)
				O Dimensione

2.3 Fuel deliveries		<u> </u>		3. Dimen	SiONS for assembly and adjustment	
Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes		Charge-air press. bar (kgf/cm²)	Designation	mm
End stop	2650 2500 2400 1400 750	max. 13,0 27,5-29,5 23,0-26,0	(20,0-28,0) (26,2-30,8) (31,7-36,3) (21,5-27,5)		K KF MS SVS	- 5,7-5,9 1,7-1,9 max.3,0
switch-off					A XK	18,5-20,5
elect.	400	0			8 XF	9,0-12,5
idle stop	500 375	max. 3,0	(4,0-12,0)		Observations	
End stop	400 500	min. 14,5 max. 21,5				
2.4 Solenoid	max. cut in volt		10,0 V ge 12V.			

Testoil-ISO 4113

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 VWW 2,0 b

3. Edition

0 460 405 007;

VE 5/10 F 2400 L 45-1 (P)

supersede 82 company:VW/Volvo engine: 069.3

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel injection Pump Test Benches and Testers

2. Test Specifications checking values in brackets (

Test Instructions and Test Equipment

0,14

mm = 0,02 (0,04)

see VDT-W-460/...

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgt/cm²)	Difference in delivery cm ³
1.1 Timing device travel	1400	2,4-2,8	mm		
1.2 Supply pump pressure	1400	5,0-5,6	bar (kgf/cm²)		
1.3 Full-load delivery without charge-air pressure	1400	33,5-34,5	cm ³ /1000 strokes		2,5 (3,0)
Full-load delivery with charge-air pressure	-	-	cm ³ /1000 strokes		
1.4 Idle speed regulation	375	6,0-10,0	cm ³ /1000 strokes		2,5 (3,0)
1 5 Start	100	min. 53,0	cm ³ /1000 strokes		
1.6 Full-load speed regulation	2500	21,0-27,0	cm ³ /1000 strokes		
1.7 Load-dependent start of delivery	-	-			

2.1 Timing device	n = rev/min	1000	I-2 4)	1400 (1,9-3,3)		100 (4,8-6,2)
2.2 Supply pump	n = rev/min ber (kgf/cm²)	500 2,8-3,4	,-2,+)	(1,5-3,3)		100
Overflow delivery	n = rev/min cm ³ /10 s	500 55-138(40-1	53)		55-138(4	100 10-153)
2.3 Fuel deliveries	<u></u>				3. Dimen	SIONS for assembly and adjustment
Speed control lever	Rot speed rev/min	Fuel delivery cm ³ /1000 strokes		Charge-air press. bar (kgf/cm²)	Designation	mm
End stop	2650 2500 2400 1400 750	max. 13,0 27,5-29,5 23,0-26,0	(20,0-28,0) (26,2-30,8) (31,7-36,3) (21,5-27,5)		K KF MS SVS	 5,7-5,9 1,7-1,9 max.3,0
smeen".	2400	0			A XK	18,5-20,5 9,0-12,5
idle stop	500 375	max. 3,0	(4,0-12,0)		Observations	
End stop	400 500	min. 14,5 max. 21,5		1		
2.4 Solenoid	max. cut+n volta 英基本省省公		10.0 V age 12V.			

Test Specifications Distributor-type Fuel-injection Pumps

45

WPP 001/4 VWW 1,6 L4

1. Edition

VE 4/9 F 2400 R 66-9

0 460 494 117

supersedes

company: VWW engine: 086

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting mm see VDT-W-460/...

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgt/cm²)	Difference in delivery cm ³
1.1 Timing device travel	1500	2,9-3,3	mm		
1.2 Supply pump pressure	1500	4,9-5,5	bar (kgf/cm²)		
1.3 Full-load delivery without charge-air pressure	1500	31,5-32,5	cm³/1000 strokes		3,0
Full-load delivery with charge-air pressure 1.4 Idle speed regulation	475	6,0-10,0	cm ³ /1000 strokes		3,0
1.5 Start	100	min. 38,0	cm ³ /1000 strokes		
1.6 Full-load speed regulation	2600	11,0-17,0	cm ³ /1000 strokes		
1.7 Load-dependent start of delivery					

2.1 Timing device	n = rev/min	1,3-2,1 (1,0-2,4)	1500 (2,4-3,8)	6,1-6,9	2400 (5,8-7,2)
2.2 Supply pump	n = rev/min	600			2400
	bar (kgf/cm²)	2,8-3,4			7,0-7,6
Overflow delivery	U = LGA/WIU	600			2400
	cm3/10 s	55-138 (40-153)		55-138	(40-153)
2.3 Fuel delivenes Speed control lever	Rot speed	Fuel delivery	Charge-air press.	3. Dimen	SiONS for assembly and adjustment mm
switch-off elect.	2800 2600 2400 1500 600	max. 2,5 (10,0-18,0) 26,5-28,5 (25,2-29,8) (29,7-34,3) 19,5-22,5 (18,0-24,0)		K KF MS SVS FH *XK ₉ XL	3,2-3,4 5,7-6,0 1,3-1,5 2,5 1,8-2,4 18,4-20,4 9,6-12,7
Idle stop	1200 600 475 400 500	max. 5,0 max. 6,0 (4,0-12,0) min. 15,5 max. 21,5		Observations *operati stroke	•
2.4 Solenoid	max. cut-in volt	rated voltade 17V			

Testoil-ISO 4113

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 VWW 1,6 b 1 2. Edition

VE 4/9 F 2400 R 66

supersede 5.82 company: VWW engine: 1,6 L

0 460 494 048

Overflow temperature 45° C

All test specifications are valid only for Boach Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

see VDT-W-460/...

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgt/cm²)	Difference in delivery cm ³
1.1 Timing device travel	1500	2,9-3,3	mm		
1.2 Supply pump pressure	1500	4,9-5,5	bar (kgf/cm²)		
1.3 Full-load delivery without charge-air pressure	1500	31,5-32,5	cm ³ /1000 strokes		2,5 (0,3)
Full-load delivery with charge-air pressure	-		cm ³ /1000 strokes		
1.4 title speed regulation	415	6,6-10,0	cm ³ /1000 strokes		2,5 (0,3)
1.5 Start	100	min. 38,0	cm ³ /1000 strokes		·
1.6 Full-load speed regulation	2600	11,0-17,0	cm ³ /1000 strokes		
1.7 Load-dependent start of delivery	-	-			

Z. Test Spe	Circatoris	checking values in brackets ()			
2.1 Timing device	n = rev/min	1000 1,3 - 2,1 (1,0-2,4)	1500 (2,4-3,8)	2400 6,1-6,9 (5,8-7,2))
2.2 Supply pump	n = rev/min ber (kgf/cm²)	400 2,1-2,7		2400 7,0-7,6	
Overflow delivery	n = rev/min cm ³ /10 s	500 55-138 (40-153)		2400 55-138 (40-153)	
2.3 Fuel delivenes				3. Dimensions	
Speed control lever	Rot. speed	Fuel delivery cm³/1000 strokes	Charge-air press. bar (kgf/cm²)	Designation mm	ent
End stop	2700 2600 2400 1500 600	2,5-9,5 (2,0-10,0) (10,0-18,0) 27,0-29,0 (25,7-30,3) (29,7-34,3) 19,5-22,5 (18,0-24,0)) 3) 3)	K 3,2 - 3 5,7 - 5 Ms 1,3 - 1 max. 2, FH #) 1,8 - 2	, 5 5
switch-off				* K 18,4 -	20,4
elect.	400	0		R L 9,1 -	12,9
ide stop	1200 600 415 400 500	max. 3,0 max. 6,0 (4,0-12,0) min. 15,5 max. 21,5		*operating stroke (KSB)	-
2.4 Solenoid	max. cut-in volta	101			

WPP 001/4 VMA 3,6 a

2. Edition

VE 6/11 F 2100 L 63

supersedes .82 company: VM Cento engine: HR 692 HT

0 460 416 014

(6)

Testoil-ISO 4113

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

0,2

+ 0,02 (0,04)

see VDT-W-460/...

1. Settings	Rot, speed rev/min	Settings		Charge-air press. har (kgf/cm²)	Difference in delivery cm ³
1.1 Timing device travel	1800	6,5-6,9	mm	0,65	
1.2 Supply pump pressure	1800	6,6-7,2	bar (kgt/cm²)	0,65	
1.3 Full-load delivery without	600	36,0-40,0	cm³/1000 strokes	0	
charge-air pressure Full-load delivery with	1500	47,5-48,5	cm ³ /1000 strokes	0,65	3,5
charge-air pressure 1.4 Idle speed regulation	450	10,0-14,0	cm ³ /1000 strokes	0	3,0
1.5 Start	100	min. 42,0	cm³/1000 strokes	0	
1.6 Full-load speed regulation	2400	22,0-30,0	cm ³ /1000 strokes	0,65	
1.7 Load-dependent start of delivery					

2. Test Spec	ifications	checking values in brackets (,		
2.1 Timing device LDA=0,65 bar	n = rev/min mm	1000 2,1-2,9(1,8-3,2)	1500 4,7-5,3(4,3-5,7)	1800 6,0-7,4)	2100 7,9-8,6(7,5-8
2.2 Supply pump LDA= 0,65 bar	n = rev/min bar (kgf/cm²)	400 1,7-2,3	7	2100 ,8-8,4	
Overflow delivery	n = rev/min cm ³ /10 s	500 55-138 (40-153	2100 55-138 (40-153)		153)
	L	<u> </u>			

2.3 Fuel deliveries					3.
Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes		Charge-air press. bar (kgf/cm²)	Des
End stop	2700 2450 2400 2100 1500 * 600	max. 1,0 9,0-15,0 43,9-46,9 38,5-41,5	(7,5-16,5) (21,5-30,5) (42,5-47,9) (45,3-50,7) (37,3-42,7) (34,6-41,4)	0,65 0,65 0,65 0,27	
switch-off	2100	0			
Idle stop	700 550 450	max. 1,0 2,0-8,0	(0,5-9,5) (7,5-16,0	0	Obs +
End stop	350 450	min. 40,0 max. 45,0			
2.4 Solenoid	max. cut-in voltage	*******	10,0 V		

3. Dimens	SIONS for assembly
Designation	and adjustment mm
К	••
KF	6,3-6,5
MS	0,9-1,1
svs	max. 2,2
+ FH	1,8-2,4
∦ XK	20,2-22,2
₹ XL	10,8-13,1
Observations	
+ Manifol	d-pressure
compens	ator stroke
= 4,0 m	m.

Correction at the

adjusting nut.(46)

1.83

BOSCH

Testoil-ISO 4113

Test Specifications
Distributor-type
Fuel-injection Pumps

40

WPP 001/4 FIA 1,7 h
1. Edition

n

VE 4/10 F 2050 R 124 0 460 404 031

company:Fiat engine: 8144-81

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

0,2

mm = 0,02 (0,04)

see VDT-W-460/...

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1,1 Timing device travel	1500	6,7-7,1	mm	0,75	
1.2 Supply pump pressure	1500	6,1-6,7	bar (kgf/cm²)	0,75	
1.3 Full-load delivery without charge-air pressure	600	43,5-44,5	cm ³ /1000 strokes	0	
Full-load delivery with charge-air pressure	1500	61,5-62,5	cm ³ /1000 strokes	0,75	3,0
1.4 Idle speed regulation	350	12,5-16,5	cm ³ /1000 strokes	0	3,0
1.5 Start	100	min. 60	cm ³ /1000 strokes	0	
1.6 Full-load speed regulation	2200	22,0-28,0	cm ³ /1000 strokes	0,75	
1.7 Load-dependent start of delivery	1500	-			

2. Test Spe	cifications	checking values in I	brackets ()			
2.1 Timing device	n = rev/mm	600		1500	20!	50
.DA=0,75 bar	mm	2.4-2.8 (1	.7-3.1)	(6,2-7,6)	8,6-9,4	1 (8,3-9,7)
2.2 Supply pump	n = rev/min	400		600	209	50
DA=0,75 bar	bar (kgf/cm²)	3,4-4,0		4,0-4,6	7,4-	3.0
Overflow delivery	n = rev/min	600			20	50
	cm ³ /10 s	55-138 (40	-153)		55-138	(40-153)
2.3 Fuel deliveries					3. Dimen	tor assembly
Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes		Charge-air press. bar (kgf/cm²)	Designation	and adjustment mm
End stop	2400	max. 1,5		0,75	K	-
	2300	max. 5,0	(00 5 00 5)	0,75	KF	5,7-6,0
	2200	E2 4 55 4	(20,5-29,5) (51,9-57,3)			1,2-1,4
	2050 1500	53,1-50,1	(59,3-64,7)	0,75	MS	1,2-1,4
	* 800	54.5-55.5	(51,6-58,4)	0,2	svs	3,2
	600		(40,6-47,4)	0		
					A XK	25,0-27,0
Switch-off	2050	0			вХГ	9,8-13,1
Idle stop	350		(10,0-19,0)		Observations	
	450	max. 3,5		1	^ Manifol	d-pressure
	500	max. 2,0			compens	ator stroke
End stop	350	min. 55			= 4.0 m	m.
ries acoh	450	max. 55				ion at the
2.4 Solenoid	max, cut-in voltag	. VVV (1111)			adjusti	ng nut.(46)
	INTLYQUADE XXX	rated volta	ige 12V.		<u> </u>	

BOSCH Geschafts C 1980 by

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VE 6/11 F 1900 L 63-1

supersedes

company: VM-Motori

engine: HR 6 H

0 460 416 029

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Pre-stroke setting 0,2 mm $\stackrel{+}{=}0,02$ (0,04)

Fuel-injection Pumps

Test Instructions and Test Equipment

Pre-stroke setting

2. Test Specifications checking values in brackets (

see VDT-W-460/...

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1.1 Timing device travel	1500	3,8-4,2	mm	0,75	
1.2 Supply pump pressure	1500	4,9-5,5	bar (kgf/cm²)	0,75	
1.3 Full-load delivery without	600	42,3-43,3	cm ³ /1000 strukés	0	
charge-air pressure Full-load delivery with	1500	61,0-62,0	cm³/1000 strokes	0,75	3,0
charge-air pressure 1.4 Idle speed regulation	350	20,0-24,0	cm ³ /1000 strokes	0	3,0
1.5 Start	100	min. 40,0	cm³/1000 strokes	0	
1.6 Full-load speed regulation	2100	20,0-26,0	cm ³ /1000 strokes	0,75	
1.7 Load-dependent start of delivery	-				

2.1 Timing device LDA=0,75 bar	n = rev/min	1000 0,9-1,7 (0,6-2,0)	1500 (3,3-4,7)	5,6-6,4	850 5,3-6,7)
2.2 Supply pump LDA=0,75 bar	n = rev/min ber (kgt/cm²)	600 2,0-2,6		185 6,0-6	
Overflow delivery	n = rev/min cm ³ /10 s	600 55-138 (40-153)		190 55 - 138	0 (40-153)
2.3 Fuel deliveries			i	3. Dimens	for assembly and adjustment
Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes	Charge-air press bar (kgf/cm²)	Designation	mm
End stop	2200 2100 2000 1850 1500 * 600	max. 1,5 (18,5-27,5) 44,0-50,0(42,5-51,5) 56,7-59,3(55,3-60,7) (58,8-64,2) 46,2-47,2(43,3-50,1) (39,4-46,2)	0,75 0,75 0,75 0,75 0,75 0,3	k KF MS SVS	- 6,3-6,6 0,9-1,1 max. 4,3
switch-off	1900	0		A XK B XL	20,2-22,2 13,0-16,4
idle stop	350 400 , 450	(17,5-26,5 7,5-12,5 (5,5-14,5) max. 3 min. 49	5)	Observations * Manifold-pressure compensator stroke	
End stop	400 500	max. 44			ion at the
2.4 Solenoid	max. cut-in volta	mated voltage 12V		adjustii	ng nut.(46)

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 FOR 2,3 a

2. Edition

supersede# .82 company: Ford engine: CID 144

VE 4/10F 1800 R 14 0 460 404 001

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

0.3

mm + 0.02 (0.04)

900 VDT-W-460/...

1. Settings	Rot speed rev/min	Settings	Charge-air press. bar (kgl/cm²)	Difference in delivery cm ³
1.1 Timing device travel	1600	3,8 - 4,2 mm		
1.2 Supply pump pressure	1600	5,5 - 6,1 bar (kgf/cm²)		
1.3 Full-load delivery without	1250	40,5 - 41,5 cm ³ /1000 stroke	18	3,0
charge-air pressure Full-load delivery with	-	_ cm ³ /1000 stroke	15	
charge-air pressure 1.4 idle speed regulation -	425	14,0 - 18,0 cm ³ /1000 stroke	*	3,0
1.5 Start	100	min. 70 cm ³ /1000 strok		
1.6 Full-load speed regulation	2050	9,0 - 15,0 cm ³ /1000 strok	*	
1.7 Load-dependent start of delivery	-			

2. Test Spec	cifications	checking values in bra	ackets ()			
1 Timing device	n = rev/min	1000 0,5-1,5(0,3	-1,7) (3	1600 3,3-4,7)	1800 4,5-5,3(4,2	-5,6)
2.2 Supply puris	n = rev/min bar (kgf/cm²)	400 1,7-2,3			1800 6,0-6,6	
Overflow delivery	n = rev/min cm ³ /10 s	500 55-138(40-	153)		1800 55-138(40-1	53)
2.3 Fuel delivenes	<u> </u>				3. Dimer	for assembly
Speed control lever	Rot speed	Fuel delivery cm³/1000 strokes		Charge-air press. bar (kgf/cm²)	Designation	and adjustment mm
End stop	2170-2260 2050	0	(8,0-16,0)		ĸ	-
	1900	31,0-37,0	(30.0-38.0)		KF	5,7-5,9
	1750 1250	38,0-40,0	(36,7-41,3) (38,7-43,3)		MS	2,0-2,2
	800	37,5-40,5			svs	max. 4,2
					A	7,7-12,7
switch-off	1800	0		_	•	8,7-11,9
idle stop	600-700 425	0	(12,0-20,	0)	Observations	
End stop	215 285	min. 70 max. 35			see ove	ther details erleaf
2.4 Solenoid	max. cut-in voltag	· xxx min.	. 10 V		1	
ļ.	Instructions V V V	rated voltage			11	

	3, Dimens	for assembly and adjustment mm
	K	-
	KF	5,7-5,9
	MS	2,0-2,2
	svs	max. 4,2
1	A	7,7-12,7
	•	8,7-11,9
1	Observations	
	For furti see over	her details leaf

F16

BOSCH CONTRACTOR

sich IDH Kundshillende Nick-nick-under Besch Gmen. Pastfach 50. 0-7000 Stuttgart 1 Print Dan Basch Gmen. Pastfach 50. 0-7000 Stuttgart 1 Print Tantania d'Albanaans per Robert Bosch Gmo-

Set by means of notched plate Setting of the upper notched plate at a plunger of 0,36 mm related to outlet "A". Testoil-ISO 4113

Test Specifications

Distributor-type Fuel-injection Pumps

WPP 001/4 FOR 2,3 b

YE 4/10F 1800 R 15 0 460 404 002

supersedes Ford **CID 144**

2. Edition

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

0,3

 $mm \pm 0,02 (0,04)$

see VDT-W-460/...

1. Settings	Rot speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³	
1.1 Timing device travel	1600	3,8-4,2	mm			
1.2 Supply pump pressure	1600	5,5-6,1	bar (kgf/cm²)		3,0	
1.3 Full-Ir delivery without	1250	40,5-41,5	cm³/1000 strokes		3,0	
charsar pressure Full-load delivery with charge-air pressure	-	-	cm ³ /1000 strokes			
1.4 Idle speed regulation	425	14,0-18,0	cm ³ /1000 strokes		3,0	
1.5 Start	100	min. 70	cm ³ /1000 strokes	İ		ļ
1.6 Full toad speed regulation	2050	9,0-15,0	cm ³ /1000 strokes			
1.7 Load-dependent start of delivery	-					

2. Test Spe		checking values in brai	CVATA ()	1600		1800
2.1 Tirning device	n = rev/min mm	1000 0,5 - 1,5 (0	,3-1,7) (1600 3,3-4,7)	4,5-5	,3 (4,2-5,6)
2.2 Supply pump	n = rev/m.n bar (kgf/cm²)	400 1,7-2,3				1800 6,0-6,6
Overflow delivery	n = rev/min	500 55-138 (40-1	53)		55-	1800 138 (40-153)
2.3 Fuel deliveries		<u> </u>			3. Dimer	for assembly
Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes		Charge-eir press. ber (kgf/cm²)	Designation	and adjustment mm
End stop	2170-2260 2050	٠	0 (8,0-16,0)	К	-
	1900	31,0-37,0	(30,0-38,	(c)	KF	5,7-5,9
	1750	38,0-40,0	(36,7-41,	3)	MS	2,0-2,2
	1250		(38,7-43,	3)	svs	max. 4,2
	800	37,5-40,5	(36,0-42,	0)		
switch-off					A	7,7-12,7
	1800	0			8	8,7-11,9
idle stop	600-700	0			Observations	
	425		(12,0-20,	,0)	For fur	ther details
End stop	215	min. 70			see ove	
	285	max. 35				
2.4 Salenaid	mex. cut-in voltage)				

Set by means of notched plate Setting of the upper notched plate at a plunger of 0,36 mm related to outlet "A".

Festoil-ISO 4113

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 FOR 2,3 c 1. Edition

VE 4/10 F 1800 R 14-1 0460 404 005 VE 4/10 F 1800 R 15-1 0460 404 006

144 c/D

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

0,2

mm = 0.02 (0.04) mm

see VDT-W-460/...

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1.1 Timing device travel 1.2 Supply pump pressure 1.3 Full-load delivery without charge-air pressure Full-load delivery with charge-air pressure 1.4 Idle speed regulation 1.5 Start 1.6 Full-load speed regulation	1600 1600 1250 - 425 100 2050	3,8-4,2 5,5-6,1 40,5-41,5 - 14,0-18,0 min. 70 9,0-15,0	mm ber (kgf/cm²) cm³/1000 strokes cm³/1000 strokes cm³/1000 strokes cm³/1000 strokes		3 , 0

2. Test Spec	cifications	checking values in brackets ()		
2.1 Timing device	u = 164/wiu	1000 0,5-1,5 (0,3-1,7)	1600 (3,3-4,7)	1800 4,5-5,3 (4,2-5,6)	
2.2 Sweety mimo	n = rev/min	400		1800	
2.2 Supply pump n = rev/min ber (kgf/cm²)		1,7-2,3	6,0-6,6		
Overflow delivery	n = rev/min	500		1800	
•	· 1		5-138 (40-153) 55-138 (40-		
2.3 Fuel deliveries	<u></u>			3. Dimensions for assembly and adjustment	
Speed control lever	Rot. speed	Fuel delivery cm3/1000 strokes	Charge-air press. bar (kgf/cm²)	Designation mm	
	2170-2260	n		1 1	

		55-136 (40-155)		33-130 (1	
2.3 Fuel deliveries	Rot speed	Fuel delivery	Charge-air press.	3. Dimens	tor assembly and adjustment
Speed control lever	rev/min	cm3/1000 strokes	ber (kgf/cm²)	ļ	
End stop	2170-2260	0		K	
	2050	(8,0-16,0)		KF	-
	1900	31,0-37,0 (30,0-38,0)			5,7-5,9
	1750	37,0-39,0 (35,7-40,3)		MS	2,0-2,2
	1250	(38,7-43,3)		SVS	max. 4,2
	800	39,5-42,5 (38,0-44,0)			
switch-off				A XK	19,3-21,3
	1800	0		8 XL	6,9-10,2
idle stop	425	(12,0-20,0)		Observations	
	630-690	0			
End stop	215	min. 70		For furt see over	her details
	285	max. 35		266 OAEL	1601
2.4 Solenoid	max. cut in volta	xxx min. 10 V irated voltage 12V.			

Set by means of notched plate Setting of the upper notched plate at a plunger of 0,36 mm related to outlet "A".

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 FIA 13,8 n 1

PE 8 P 120 A 920/5 LS 3812

RQV 300-1050 PA 475

supersedes

companyFiat

1-8-4-3-6-5-7-2 je 45 $^{\circ}$ $^{+}$ 0,5 $^{\circ}$ ($^{+}$ 0,75 $^{\circ}$)

engine: 8281.22.050

Komb.-Nr. 0 401 848 749

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers.

A. Fuel Injection Pump Settings

Port closing at pres	stroke (3,5-3,6 3,45-3,65)	mm (from BDC))
Rotational speed	Control rod	Fuel delivery	Difference	
	4376		cm³/	J

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm
1050	10,9+0,1	20,7-21,1	0,5(0,9)			
300	4,9-5,1	1,7-2,3	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

Testoil-160

Upper rated s	peed		Intermediat	e rated sp	eed		Lower rated speed				Sliding sleeve travel	
deflection	rev/min Control rod travel	Control rod travel	of control		Control re travel	od _	Degree of deflection of control		Control rod travel		1	
	mm 2	rev/min (2	lever	rev/min	mm e	•	lever	rev/min	mm	3	rev/min	mm
<u> </u>	ļ .		 	-	6		ļ <u>′</u>	8	9		:0	11
max.	1080	15,2-17,8	-	-	-		ca.10	100	min.			1,6-1,7
- 60	2.0	1000 1100			,			300	15,9-6	,1	450 800	3,5-4,8 6,1-6,3
ca. 60	9,9	1090-1100					Ì		•			0,1-0,
1	4,0	1180-1210	ł	£			1	ł				ľ
İ	1300	0 - 1,0			i		310-415					
				1			(3a)					

Torque controi travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load of Control-ro Test od ter		Rotational-speed 20 imitation intermediate speed	Fuel deliv	rery characteristics (Se	Starting Idle switching	, •	Torque-control 5 travel	
rev/men	cm³/1000 strokes	rev/min		cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	_
LDA 1050	0,7 bar 207,0-211,0 (204,0-214,0		LDA 105		100	230,0-250,0 (226,0-254,0		<u>-</u>

Checking values in brackets

* 1 mm less control rod travel than col. 2

2.83

D. Adjustment Test for Manifold Pressure Compensator

Test at n =

500 rev/min decreasing pressure – in bar gauge pressure

PIA 13,8 n 1 -2-

Pump/governor	Setting	Measurement	diminution
	Gauge pressure = bar	Gauge pressure = bar	Control rod travel- difference mm (1)
PE 8 P LS 3812 + RQV PA 475	0,70	0 0,30 0,25	10,9-11,0 8,5-8,6 10,4-10,5 9,1-9,4

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications ② Fuel Injection Pumps 2 WPP 001/4 and Governors

MB 17,4a

PE 10 P 100 A 320 LS 842

RO 300/1150 PA 187-1 R

supersedes2.80

company: Daimler Benz

OM 403

10- 9- 4- 1- 8- 7- 6- 3- 5- 2 ±0,50° 0-45-72-117-144-189-216-261-288-333 (0,75°)

235,4 kW (320 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(3,35-3,55)

mm (from BDC)

Zy1.10

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	11,4-11,5	10,1 - 10,3	0,3(0,6)			_
300	8,0-8,2	1,4- 2,0	0,3(0,5)			
			<u> </u>			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Chacking at amount		Full-load speed regulation Setting point Test spec			cifications (4)	Idle speed regul Setting point Control			cifications 5	Control rod		
	travel	rev/min 3	nel travel mm 4	red travel mm 5	rev/min 6	rev/min 7	red travel mm 8	rev/min 9	travel mm 10	rev/min 11	travel mm 12	
650	13,8-14,6	650	14,2	10,4	1195-1210	300	8,1	100	min.10,6	1150	11,4-11,5	
1350	0-1			4,0	1245-1275			300	8,0-8,2	600	11,4-11,6	
								425	465=2,0			

Torque-control travel on flyweight assembly dimension a =

rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

governor	delivery on control lever mp. 40°C (104°F)	Control rod stop	Fuel delive	ery characteristics	~~ \	Starting fuel delivery Idle speed Control Indition		
rev/min	cm ³ /-1000 strokes	rev/min	rev/mm	cm ³ /-1000 strokes 5		rev/min 6	cm ³ /1000 strokes / mm	
1150	101,0 - 103,0 (39,0 - 105,0)	600	-	-		100	125,0 - 1 5,0	
							6	

Checking values in brackets

2.83

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps 2 and Governors

WPP 001/4 MAN 17.4 a1 2. Edition

PE 10 P 110 A 520/4 LS 846

RQ 250/1150 PA 561

supersed 2.82 company:MAN engine: D 2540 MT 323 kW (439 PS)

$$1 - 8 - 7 - 6 - 3 - 5 - 2 - 10 - 9 - 4$$

 $0 - 27 - 72 - 99 - 144 - 171 - 216 - 243 - 288 - 315 \cdot -0,5 \cdot (-0,75 \cdot)$

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(2.95 - 3.15)

mm (from BDQ/V) 10

Rotational speed rev/min 1	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm
1150	11,9+0,	1 14,0 - 14,2	0,4 (0,8			
250	6,9-7,1	1,1 - 1,7	0,4 (0,7			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin	g of slider ck (1)	Full-load : Setting po		-	cifications (4)	idle spec Setting p	•		cifications (5)	Torque d	control (3)
rev/min 1	Control rod travel mm	rev/min 3	Control red travel mm 4	Control cul travel rnm 5	rev/min 6	rev/min 7	Control red travel mm	rev/min 9	Control rod travel mm	rev/min 11	Control rod travel mm
000 VH	19,2-20,8 • max. 46°	600	20,0		1195-1210 1300-1330 0 - 1,0	250	7,0	250	min.8,5 6,9-7,1 90 = 2,0		11,9-12,0 11,9-12,1

Torque control travel on flyweight assembly dimension a

Speed regulation: \$195-1210 min -1

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	ontrol lever op 40°C (104°F)	Control rod stop 3a	Fuel delivi	ery characteristics 3b	Starting fi Idle spee	uel delivery d Castra
rev/min	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	red travel cm ³ /1000 strokes / mm 7
LDA 1150	0,9 bar 140,0 - 142,0 (137,0 - 145,0)	_	LDA 750 LDA 500	0,9 bar 134,0 - 138,0 (131,0 - 141,0) 0 bar 115,0 - 118,0 (112,0 - 121,0)	100	145,0 - 175,0

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

MAN 17.4 a 1

-2-

500			1000 17,94 a 1
Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PE10PLS 846 + PA 561	0,9	0 0,38 0,33	11,9 - 12,0 11,1 - 11,2 11,7 - 11,8 11,3 - 11,5

Notes

(1) when n =

rev/min and gauge pressure = bar (= maximum full-load control rod travel)

2

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 FIA 13,8 o
4. Edition

<u>En</u>

PE 8 P 120 A 920/5 LS 3804

RQ 300/950 PA 474

supersedee 82 company:Fiat

engine: 8280.22.007

1 - 8 - 4 - 3 - 6 - 5 - 7 - 2 je $45^{\circ} + 0.5^{\circ} (+ 0.75^{\circ})$

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(3.45-3.65)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ² / 100 strokes	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
950	10,9+0,1	20,5 - 20,9	0,5(0,9)			
300	4,9-5,1	1,9 - 2,5	0,8(1,2)			
					1	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking PRG che		Full-load s Setting po		•	cifications (4)	Idle spee Setting p	•		cifications (5)	Torque d	(3)
rev/min	Control rod travel mm	rev/min 3	Central rad travel (TIM) 4	Central red travel rnm 5	rev/min 6	rev/min 7	Centrel red travel mm 8	rev/min	Control rod travel mm	rev/min	Control rod travel mm 12
600 VH:	19,2-20,8 max. 49°	600	20,0		995-1010 1030-1060 0 - 1,0	300	5,0	100 300 350-3	min. 7,5 4,9-5,1 90=2,0mm	950 600	11,1-11,2 11,1-11,3

Torque-control travel on flyweight assembly dimension a =

mm

Speed regulation: AP95-1010 min-1

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on control lever pp. 40°C (104°F)	Control rod stop 3a	Fuel deliv	ery characteristics 3b	Starting fi	uel delivery 6
r ev/man 1	cm³/-1000 strokes	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min	cm ³ /1000 strokes / mm 7
LDA	0,7 bar	•	LDA	0 bar	100	19,5-21,0 mm R
950	205,0-209,0 (202,0-212,0)		950	149, 0-153, 0 (146, 0-156, 0)		

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

Testatn =

500

rev/min decreasing pressure - in bar gauge pressure

FIA 13,8 o

-2-

Setting	Measurement	diminution Control rod travel- difference		
Gauge pressure = bar	Gauge pressure = bar	mm (1) ,		
0,70	0 0,35 0,28	10,9 - 11,0 8,3 - 8,4 10,3 - 10,4 9,0 - 9,3		
	Gauge pressure = bar	Gauge pressure = bar Gauge pressure = bar 0,70 0,05		

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

G4

WPP 001/4 FIA 13,8 p 3. Edition

PE 8 P 120 A 920/5 LS 3804

RQ 300/1200 PA 356 R

1-8-4-3-6-5-7-2 je 45 ° $^{+}$ 45 ° $^{+}$ 0,50 ($^{+}$ 0,75 °)

supersedes 2.81 company: Fiat

engine:

8280.02.405

Komb.-Nr. 0 401 848 719 0 401 848 715

3

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1200	9,3-9,4	17,3-17,7	0,5(0,9)			
300	5,9-6,1	2,8-3,6	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking PRG che		Full-load s	•	•	cifications (4)	idle spec Setting p	•		cifications (5)	Torque (control 3
rev/min	Control rod travel mm	rev/min 3	Control red travel mm	Central red travel rnm 5	rev/min 6	rev/min 7	Central red travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel
650	15,6-16,4	650	16,0	8,3 4,0 1400	1245-1260 1280-1310 0 - 1,0	1	6,0	100 300 400-	min. 7,5 5,9-6,1 440 = 2,0	650	9,3-9,4 9,3-9,5
	control travel ght assembly dimer	nsion a =	•	mm	Spe	ed regula		45-126	0 min ⁻¹		1 mm less contro rod trave

C. Settings for Fuel Injection Pump with Fitted Governor

	relivery on control lever np. 40°C (104°F)	Control rod stop 3a	Fuel delive	ery characteristics 3b	Starting for lide speed	Carlos .
rev/min	cm ³ /-1000 strokes	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	tev/min	rat tradi cm ³ /1000 strokes/ mm 7
1200	173,0-177,0 (170,0-180,0)	-	-	-	100	19,5-21,0

Checking values in brackets

WPP 001/4 RAB 9,7 b

1.Edition

PES 6 A 95 D 420 LS 2595

Komb.-Nr. 0 400 846 514

RQ 200/1100 AB 1094-1 R

supersedes company:RABA

engine: D 2356 HM 6 U

162 kW

Testoil-ISO 4113

All test specifications are valid for Boach Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(1 05-2 16)

mm (from BDC)

		1,95-2,15)				
Rotational speed rev/min 1	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	11,3+0,	12,1-12,3	0,3(0,6)			
200	6,0-6,	0,8-1,4	0,3(0,5)		·	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin PRG che	g of slider ick (1)	Full-load : Setting po	•	•	cifications (4)	ldle spec Setting p	•		cifications (5)	Torque	control 3
rev/min 1	Control rod travel mm	rev/min 3	Control red travel (TICT) 4	Control red travel mm 5	rev/min 6	rev/min 7	Control red Savel (THT) 8	rev/min 9	Control rod travel mm	rev/min 11	Control rod Control
550 VH =	19,2-20,8 max. 46°	550	20,0		1145-1160 1175-1205		6,0	100 200 290- 350	min.7,5 5,9-6,1 330=2,0 max.1,0	1100 500 750 855	11,3-11,4 12,0-12,1 11,7-11,9 11,5-11,7

Torque-control travel on Ryweight assembly dimension a = 0,3_{mm}

1145-1160 min-1 Speed regulation: At

1 mm less control

C. Settings for Fuel Injection Pump with Fitted Governor

	etivery on control lever np. 40°C (104°F)	Control rod stop 3	Fuel delive	ery characteristics 3b	Starting fuel delivery Idle speed		
rev/min	cm³/-1000 strokes	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min	Carrier 000 Strokes Filling W	
1100	121,0-123,0 (119,0-125,0)	500	800 500	122,0-125,0 (119,5-127,5) max. 117,0 (max. 119,0)	100	17,5-18,1	

Checking values in brackets

Test Specifications ② Fuel Injection Pumps 2 WPP 001/4 MAN 17,4 b and Governors

1. Edition

PE 10 P 1104520/5 LS 850

RQ 750 PA 404-3

supersedes-

company: MAN

D 2540 MTE

235 kW (320 PS)

Testoil-150 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

3,0-3,1 (2,95-3,15) Port closing at prestroke

mm (from BDC)

= RW 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	12,9+0,1	15,2-15,4	0,4(0,8)			
250	6,9-7,1	1,1-1,7	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin PRG che		Full-load specified points	int	Test spec		ldle spec Setting p	point		cifications (5)	Torque o	(3)
rev/mir:	Control rod travel mm			Cantrol red travel rmm	rev/min	rev/min 7	Control red travel room 8	rev/min 9		rev/min	Control rod travel mm
•	•	•	-	11,9 6,6 900	750-755 780-790 0 - 1,0	-	-	•	-	-	•

on flyweight assembly dimension a =

750-755 min⁻¹

rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

rev/min 2		ontrol lever	Control rod stop 3a	Fuel delivery characteristics			Starting fuel delivery lide speed		
700 152,0-154,0 100 19,5-21,0	r ev/mun 1	cm ³ /-1000 strokes 2	г еч/тіп 3	rev/min	cm³/-1000 strokes 5		rgulatun B	on 1346 cm ² /1000 strokes / mm	
	700	152,0-154,0 (149,0-157,0)	-	•	•		100	19,5-21,0	

WPP 001/4 MAN 11,1 q 10 1. Edition

PES 6 P 110 A 720 LS 375

RQ 750 PA 638

Komb.-Nr. 0 402 046 237

supersedes_

company: MAN

D 2566 MTE 147 kW

All test specifications are valid for Boach Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pre

Testoil-ISO 4113

rev/min	mm 2	cm ³ /100 strokes	100 strokes	mm 2	cm ³ /100 strokes 3	mm 6
700	12,5+0,1	15,6-15,8	0,4 (0,8			
250	6,7-6,9	1,0-1,6	0,4 (0,7)			

B. Governor Settings

Checkin PRG che	g of slider ck (1	Full-load s Setting po			crications (4)	idle spec Setting p	_		criications (5)	Torque o	(3)
rev/min	Control rod travel mm 2	rev/min	Cantrol red travel intro 4	Control red travel rmm 5	rev/min 6	rev/min 7	Control red travel rhrn 8	rev/min 9	Control rod travel mm	rev/min 11	Control rod
•	-	-	-	11,5 4,0 900	750-755 780-790 0-1,0	•	-	-	•	-	-

Torque-control travel on flyweight assembly dimension a =

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d governor o Test od ter	edivery on control lever np. 40°C (104°F)	Control rod stop 3a	Fuel deliv	ery characteristics 36	Starting fuel delivery Idle speed rev/min KdERMEODERIONS #		
r godinin 1	cm³/-1000 strokes 2	rev/min 3	rev/man 4	cm ³ /~1000 strokes 5	rev/min 6	COMPRESSED AND STREET	
700	156,0-158,0 (153,0-161,0)	-	-	~	100	19,5-21,0	

Checking values in brackets

40

WPP 001/4 MB 16,0c

7. Edition

Testoil-ISO 4113

PE 10 P 100 A 320 LS 811 RQ 300/1250 PA 187 R

supersedes 6.80
Daimler-Benz
company: OM 403

$$1 - 8 - 7 - 6 - 3 - 5 - 2 - 10 - 9 - 4$$
 engine:
 $0 - 27 - 72 - 99 - 144 - 171 - 216 - 243 - 288 - 315° - 0,5° (-0,75°)$

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Komb.- Nr. 0 401 849 133

A. Fuel Injection Pump Settings

Port closing at prestroke

3,40-3,50

mm (from BDC) Zyl. 10

Rotational speed rev/min 1	Control rod travel mm	Fuel delivery cm³/100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250 300	10,1,0,7,4-7,6	1,8 - 2,4	0,3(0,6) 0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking PRG che	(1)	Full-load spoi	nt	•	cifications (4)	ldle spec Setting p	•		cifications (5)	Torque o	control (3)
rev/min 1	Control rod travel mm		mm mm	Central red travel rnm 5	rev/min	rev/min 7	Control red travel rnon 8	rev/min 9	Control rod travel mm	rev/min	Control rod travel
650	13,8-14,6	650	14,2	9,1 4,0 1450	1295-1310 1335-1365 0 - 1,0		7,5	300	min. 9,0 7,4-7,6 445=2,0		10,1-10,2 10,1-10,3

Torque-control travel on flyweight assembly dimension a =

mm

Speed regulation: At

f mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

governor	letivery on control lever np. 40°C (104°F)	Control rod stop 3a	Fuel deliv	ery characteristics 36	Starting fuel delivery Idle speed		
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	r ev /min 6	red travel cm ³ /1000 strokes/mm	
1250	100,0 - 102,0 (98,0 - 104,0)	600	600	77, 0 - 82, 0 (75, 0 - 84, 0)	100	110 - 130	

hecking values in brackets

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps 2 and Governors

WPP 001/4 MB 10,8m 1 1. Edition

PE6P100A720RS5

RO 250/1100 PA 9 DR

Daimler-Benz сопралу:

OM 355

154,5 kW (210 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Rump Settings

Port closing at prestroke

(2,75-2,95)

mm (from BDE) RW 9,0-

12.0 mm

Rotational speed rev/min	Control rod ravel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1090	12,0+0,	9,9-10,1	0,3(0,6)			
250	7,9-8,1	1,7-2,3	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking PRG che		Full-load s Setting po		-	cifications (4)	idle sper Setting p	•		cifications (5)	Torque	control (3)
	Control rod travel mm	rev/min 3	Control red travel rnrrs	Central red travel rnm 5	rev/min	rev/min 7	Control red travel mm 8	rev/min 9	Control rod travel mm	rey/min	Control rod
600	15,6-16,4	600	16,0		1145-1160 1185-1215 0 - 1,5		6,0		min.7,5 5,9-6,1 25= 2,0	1090 450 700	12,0-12,1 12,6-12,7 12,4-12,6
									0 min-1		

Torque-control travel on flyweight assembly dimension a =

1145-1160 min Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

governor c	Full-load delivery on governor control lever (est oil temp. 40°C (104°F)		stop 3a	Fuel deliv	ery characteristics	36)	Starting f	uel delivery d
rev/min 1	cm³/=1000 strokes	rev/min 3		rev/min	cm³/-1000 strokes		rev/min 6 100	rad travel cm ³ /1000 strokes:/ mm
1090	99,0-101,0 (97,0-103,0)			450 700	88,0-92,0 (86,0-94,0) 98,0-102,0 (96,0-104,0)		100	150,0-170,0
				·				

Checking values in brackets

2.83

G10 **BOSCH**

WPP 001/4 MB 11,4 r 1. Edition

PES 6 P 110 A 820 LS 459

RQ 350/1050 PA 655

supersedes

companyDaimler-Benz engine: OM 407 h

Komb.-Nr. 0 402 046 248

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

0

(3.15-3.35)

mm (from BDC)Zy1. 6

Rotational speed rev/min	travel		Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm
1050	9,5-9,6	9,9-10,1	0,4(0,8)			
350	6,6-6,8	1,4-2,0	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin PRG che	kok (1)	Full-load s Setting po	-	-	cifications (4)	ldle spec			cifications (5)	Torque d	control 3
rev/min	Control rod travel mm	rev/min 3	Control rod travel rnem 4	Control red travel rnm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel		Control rod travel mm
600	13,1-13,9	600	13,5	-	1095-1100 1145-1175 0 - 1,0		6,7	350	min. 8,1 6,6-6,8 10 = 2,0	1050 900 600	9,5-9,6 9,7-9,9 10,3-10,5

on flyweight assembly dimension a = 0,4

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	delivery on control lever mp. 40°C (104°F)	Control rod stop 3a	Fuel deliv	ery characteristics	Starting f	
rev/min	cm ³ /-1000 strokes	rev/min	rev/min	cm ³ /-1000 strokes	rev/min	Confra rod travel cm ³ /1000 strokes / mm
1050	99,0-101,0 (96,0-104,0)	-	600	90,0-94,0 (87,0-97,0)	100	130,0-150,0

Checking values in brackets

WPP 001/4 MB 8,3 c 4 2. Edition

PE 6 A 90 D 410 RS 2124

RQ 300/1250 AB 812 DL

company: Daimler-Benz

OM 360

141 kW (192 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings 2,15-2,25 Port closing at prestroke (2, 10-2, 30)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm
1250	10,2+0,	8,6 - 8,7	0,3 (0,45)		\exists
300	6,3-6,5	1,2 - 1,8	0,2 (0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking PRG che		Full-load s Setting po	•	•	cifications (4)	Idle spec Setting p	•		cifications (5)	Torque o	(3)
rev/min 1	Control rod travel mm	rev/min 3	Central red travel cricin	Central real travel rnm 5	rev/min 6	rev/min 7	Central red travel mm 8	rev/min 9	Control rod travel mm		Control rod travel mm
700	15,6-16,4	700	16,0	9,2 4,0	1295-1310 1345-1375		6,4	100 300 370- 500	min.7,9 6,3-6,5 10 = 2,0 max.1,0	-	-

Torque-control travel on flyweight assembly dimension a =

1295-1310 min⁻¹ Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	lelivery on control lever pp. 40°C (104°F)	Control rod stop	Fuel deliv	ery characteristics 3b	1 6		
rev/min	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	red travel cm ³ /1000 strokes/ mm 7	
1250	86,0-87,0 (84,0-89,0)	•	800	80,0-83,0 (78,0-85,0)	100	19,0-21,0 mm RW	

Checking values in brackets

WPP 001/4 BAO 10,6 a
1. Edition

En

PES 4 P 120A 320 RS 451

RQV 350-900 PA 618

supersede

company:Baudouin

engine: 107 kW (145 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2,75-2,95

mm (from BDC)

	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm 6
900	11,0+0,1	17,6-18,0	0,5(0,8)			
350	7,2-7,4	2,2-2,8	0,8(1,2)			
:						

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed		Intermediate	rated sp	eed	Lower rated	speed	•	Slidina s	leeve travel
deflection	rev/min Control	Control rod (a)	Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel		①
• • • • • •	rod travel	rev/min (28)		rev/min	mm (4)	lever	rev/min	mm (3)	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	940	15,2-17,8	-	-	-	ca. 30	100 350	min. 8,8 7,2-7,4	300 500	0,7-1,0 3,2-3,8
	10,0 4,0 1150	940-950 990-1020 0 - 1,0				350-440			700 900	5,5=5,9 8,0
		J - 1,0				3				

Torque control travel a =

ma

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load di Control-roi Test oil ten		intermediate speed	1 -		Starting idle switching	. •	Torque- travel	control (5) Control rod travel
rev/min	cm³/1000 strokes	rev/min 40	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	9
900	176,0-180,0 (173,0-183,0		•	•	•	-	•	-

Checking values in brackets

*1 mm less control rod travel than col. 2

WPP 001/4 0MB 8,1d 2 .Edition

Testoil-ISO 4113

PES 6 MW 100/720 RS 1012 0 403 446 127

ROV 425-1100 MW 36

supersedes 82

companyOM-Brescia engine: 8365.25.580 129 kW (175 PS)

1 - 5 - 3 - 6 - 2 - 4

 $0 - 60 - 120 - 180 - 240 - 300 \pm 0,5(0,75)$

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	troke	2,90-3,00 (2,85-3,05)	mm (from BDC)	RW 10.5	nm	
Rotational speed	Control rod	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	ოო 2	cm ³ /100 strokes 3	cm ³ / 100 strokes 4	mm 2	cm ³ /100 strokes 3	mm 6
1100	11,5+0,1	9,6 - 9,8	0,35(0,6)			_
425	5,8-6,0	1,15 ~ 1,55	0,35(0,55			
700	12,4+0,1		0,5 (0,7)			
500	11,2+0,1		0,35(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed		Intermedia	te rated sp	eed	Lower rated	speed		3 rev/min mm 10 11		
Degree of deflection of control	rev/min Control rod travel	travel	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel mm 3	rev/min	mm	
lever 1	2	3	4	5	6	7	8	9	10	11	
max.	1100	15,2-17,8	3 -	-	-	ca. 14	425	5,8-6,0			
	1300	0 - 1,0	o				100	'min.7,5			
ca.49	10,5	1140-115	0				470-	530= 2,0			
	4,0	1185-121	5			39					

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-roc Test oil terr		Rotational-speed 20 timitation intermediate speed	Fuel deliv high idle s	need (a)	Starting idle switching		Torque- travel	control (5) Control rod	
rev/min cm³/1000 strokes		rev/min 4	rev/min cm ³ /1000 strokes		rev/min	cm ³ /1000 strokes	rev/min	ww	
1	2	3	4	5	6	7	8	9	
LDA	0,5 bar		LDA	0,5 bar			700	12,4+0,	
1100	96,0-98,0 (94,0-100,0)	1140 - 1150 *	700	101,0-105,0 (99,0-107,0)		RW max.19 min.160,0	1000	11,5+0,	
	,		LDA	0 bar	İ				
			500	75,0-77,0 (73,0-79,0)	100-2	20 (80-240)			

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500	/min inchesing pres	sure - in bar gauge pressure KXXX	0MB 8.1 d	2
Pump/governor	ng l	Measurement	diminution Control rod travel- difference	
	Gauge pressure =	bar Gauge pressure =	bar mm (1)	
RS 1012 +	0,27		12,1 - 12,2	
RQV-MW 36		0,2	11,5 - 11,7	
		0,5	12,4 - 12,5	
		0	11,2 - 11,3	
		•		

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

estoil-ISO 4113

 \odot

Test Specifications Fuel Injection Pumps 1 WPP 001/4 MAN 20,9c and Governors 3. Edition

PE 12 P 120 A 520 LS 836 RQ1

RQV250-1150PA353R

Supersegus 80

compaMAN

engine D2542MLE

0 - 45 -60 -105-120-165-180-225- 240-285 - 300-345 $^{\circ}$ +0,5 $^{\circ}$ (±0,75 $^{\circ}$) 478 ,0 (650 PS)

All test specifications are valid for Boach Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

9,00-3,10 Port closing at prestroke (2,95-3,15

mm (from BDC)

Zv1. 12

· Or actual as been		2.95-3.15	min (irom boc)	tyr. 12						
Rotational speed ray/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm				
1150	11,3-11	4 18,5 - 18,8	0,5(0,9)							
250	6,7-6,9	2,2 - 2,8	0,8(1,2)							

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed	•	Intermediat	e rated sp	eed	Degree of deflection of control lever rev/min mm 3			O:	
deflection	rev/min Control rod travel	Control rod (travel	of control		Control rod travel	deflection		1	Swamg s	100ve travel
		rev/min (2	lever				rev/min	mm ③	rev/min	i i
			+		le	<u> </u>	6	9	10	11
max.	1150	15,2-17,8	-	-	-	ca.11	100	min.8,3		0,6-0,9
	1450	0 - 1,0	İ				250	6,7-6,9	830	3,2-3,7 5,7-6,0
ca.66	10,3	1190-1200	7				520-5	80 =2,0	1150	8,1
	4,0	0 - 1,0				③		·		

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rad stop Test oil temp. 40°C (104°F) 2		Rotational-speed (2b) Irritation Intermediate speed	Fuel delivery characteristics (5a) high site speed (5b)		Starting Idle switching	<u> </u>	Torque- travel	control 5	
rev/min	cfh³/1000 strokes .	rev/min 4a		cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	travel mm	
1	2	3	4	5	6	7	8	9	
1150	185,0-188,0 (182,0-191,0)				100 100-	200,0-220,0 170 (80-190)			

Checking values in brackets

*1 mm less control rod travel than cot. 2

WPP 001/4 BAO 13,2 a

1. Edition

PES 5 P 120 A 320 RS 452

RQV 350-900 PA 618

1 - 2 - 4 - 5 - 3 je $72^{\circ} \div 0.5^{\circ} (\div 0.75^{\circ})$

company Baudouin
engine: DNP 5
132 kW

All test specifications are valid for Boach Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	troke	(2,75-2,95)	mm (from BDC)			
Rotational speed	Control rod travel	Fuel delivery	Difference cm ³ /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	100 strokes	mm	cm ³ /100 strokes	mm
1	2	3		2	3	6
900	11,0+0,1	17,6-18,0	0,5 (0,8)			
350	7,2-7,4	2,2-2,8	0,8 (0,7)			
	ł					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Testoil-ISO 4113

Upper rated s	peed		Intermediate	rated sp	eed	Lower rated	speed	•	Sliding s	leeve travel
deflection	Control	travel 🕒	Degree of deflection		Control rod travel	Degree of deflection		Control rod travel	0	
of control	uuu Log trave	rev/min 2a	of control lever	rev/min	mm 4	of control lever	rev/min	mm 3	rev/min	നന
1	2	3	4	5	6	<u>:</u>	8	9	10	11
max.	940	15,2-17,8	-	-	-	ca.30	100	min.7,5	300	0,7-1,0
ca.59	10,0	940-950	Ţ				350	7,2-7,4	500	3,1-3,8
(0.5)	4,0	990-1020	1	ļ					700	5,5-5,9
	1150	0-1,0	ļ			350-440			900	8,0
! 	į	·		ļ	i				j j	
	į .]			③				
	<u> </u>	<u></u>	<u> </u>	<u> </u>	<u> </u>		<u> </u>		<u> </u>	I

Torque control travel a =

mn

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2		irritation intermediate speed	high ide s	ery characteristics (Se peed (99)	Starting Idle switching	. •	Torque-control 5 travel Control rod		
rev/min	criti ³ /1000 strokes	rev/min 40	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	travel mm	
1	2	3	4	5	6	7	8	9	
900	176,0-180,0 (173,0-183,0		-	- -	100	19,5-21,0 mm RW	•	-	

Checking values in brackets

* 1 mm less control rod travel than col 2

Test Specifications Fuel Injection Pumps ①

and Governors

WPP 001/4 MAN 20,9 q

1. Edition

PE 12 P 110 A 520/4 LS 848

ROV 250-1200 PA 644

supersedgs companyMAN

1- 5- 9- 8- 3 - 4 - 11- 10- 2 - 6 - 7 - 12 G-15-60-75-120-135-180-195-240-255-300-315° -0,5° (-0,75°)

engine: D 2842 ME 338 kW

All test specifications are valid for Boach Fuel Injection Pump Test Banches and Testers

Komb.-Nr. 0 401 840 078

A. Fuel Injection Pump Settings

Port closing at pres	stroke	3,0-3,1 (2_95_3_15) mm (from BDC)7y1_12									
Rotational speed	Control rod travel	Fuel delivery	Difference cm ³ /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)					
rev/min 1	mm 2	cm ³ /100 strokes 3	100 strokes	mm 2	cm³/100 strokes 3	mm 6					
1200	11,9+0,1	12,5-12,7	0,4(0,8)								
250	7,0-7,2	0,9-1,5	0,4(0,7)								
						:					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Testoil-ISO 4113

Upper rated s	peed			Intermediate	rated sp	ed .		Lower rated	speed			Siding s	leeve travel
deflection	rev/min Control rod travel	travel (2	Degree of deflection of control		Conti	rof rod I	Degree of deflection of control		Control ro travel	d		0
lever	mm ave	rev/min	- 11		rev/min	mm	•	lever	.ev/min	നന	③	rev/min	mm
1	2	3		4	5	8		7	8	9		10	11
max.	1230	15,2-17,8	3	-	-		-	ca.12		min.8, 7,0-7,		315 950	,6-1,9 5,1-5,3
ca. 61		1240-1250 1365-1395						425-550	230	<i>u</i> , 0 - 7 ,	•	1200	7,5
								③					

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil femp. 40°C (104°F) 2		Rotational-speed 2b limitation intermediate speed	Fuel delin high idle s	very characteristics (Se peed (Se)	Starting Idle switching		Torque-control 5 travel Control rol	
rev/men Cm³/1000 strokes		rev/min 4	ten/umu	cm ³ /1000 strokes	rev/min cm³/1000 strokes		rev/min	travel mm
1	13	3	4	5	6	7	8	9
1200	125,0-127,0 (122,0-130,0)		-	•	190	150,0-170,0 (146,0-174,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

2.83

G18

BOSCH

Geschäftsbereich KM, Kundendienst, Kfz-Ausrustung. C by Robert Bosch GmbH, D-7 Shittgart 1, Postfact 50. Printed in the Federal Republic of Germany transmite en Republique Federale d'Allemagne per Pobert Bosch GmbM.

WPP001/4 KHD 4,7 b 2. Edition

PES 5 A 80 D 410/3 RS 2579 RQV 300-1400 AB 1048 DL

1-3-5-4-2 je 72° $^{+}$ 0,5° ($^{+}$ 0,75°)

supersedes 9.82
company: KHD
F 5 L 912
engine: 74 kW (101 PS)

bei 2800 min

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuei Injection Pump Settings

1,9-2,0 Port closing at prestroke (1,85-2,05) mm (from BDC)

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 8
1400	11,4+0,	6,1-6,2	0,2(0,35)			
300	8,9-9,	1,0-1,6	0,2(0,3)			
·						

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed rev/min	Control rod	Intermediate	rated spe	eed Control rod	Lower rated Degree of	speed	Control rod	Sliding s	leeve travel
	Control rod travel mm	travel	deflection of control	rev/min 5	mm 4	deflection of control lever 7	rev/min 8	mm 3	rev/min 10	mm 11
max. ca. 60	1400 10,4 4,0 1850	15,2-17,8 1480-1490 1710-1740 0-1,0		•	-	ca.10 390-490	100 300 750			0-0,6 2,9-3,1 5,0-5,3 5,9
						3				

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2		Rotational-speed 2b limitation intermediate speed		Fuel delivery characteristics (5a) high idle speed (50)		fuel delivery 6	Torque- travel	control (5)
rev/min	cm³/1000 strokes	rev/min 49	rev/min 4	cm ³ /1000 strokes 5	rev/min	cm ³ /1000 strok es	rev/min 8	travel mm
1400	62,5-63,5 (61,0-65,0)	1480-1490*	900 750	59,5-61,5 (57,5-63,5) 56,5-58,5 (55,0-60,0)	100	120,0-130,0 bei 20,5-21,5 mmRW	1075 825	

Checking values in brackets

* 1 mm less control rod travel than col. 2

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WPP 001/4 PEN 10,0 d 1 1. Edition

En

PE 6 P 110 A 320 RS 138

RSV 200-900 P 1/305 R

supersedes

Komb.-Nr. 0 401 876 104

company Volvo-Penta MD 100 B engine 114 kW (155 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings 2,6 - 2,7

Port closing at prestroke

Testoil-ISO 4113

(2,55-2,75)

mm (from BDC)

Rotational speed rev/min	Control rod travel	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
700 225	9,3-9,4 5,4-5,5	10,9-11,1	0,4 (0,8) 0,3 (0,6)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

	r rated speed		Intermediate rated speed			(4)		rated speed	3 Torque control		
Degree of deflection	Control rod travei	Control rod travel				Control- lever		Control rod travel		Control rod travel	
of control lever	mm 2	mm rev/min 3	4	5	6	deflection in degrees 7	rev/min 8	mm 9	rev/min 10	11	
loose	800	0,3-1,0	-	-	-	ca. 23	225	5,0	-	-	
	x =	6,0					100 225	min.20,0 5,4-5,5			
ca.48	8,3 4,0 1100	940-950 970-1000 0,3-1,7					310-370				

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	il-load stop emp. 40°C (104°F)	Note:		3a Fuel delivery characteristics		uel delivery 5	Idle stop Control rod		
rev/min	cm ³ /1 000 strokes 2	changed to) rev/min 3	rev/min 4	cm ³ /1 000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	trav el mm 9	
700	109,0-111,0 (106,0-114,0)	940-950*	-	•	100	310,0-330 = RW 20,0 21,0 mm		•	

Checking values in brackets

BOSCH

^{* 1} mm less control rod travel than col. 2

WPP 001/4 VAL 3,3a

2. Edition

En

PES3A95D 320 RS 2655

RSV 325-1150 A 2 B 2178-1R

supersedes 11.82
Valmet
company 311 DS 6

1 - 2 - 3 je 120 • \pm 0,5 • (\pm 0,75 •)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

Testoil-ISO 4113

(2,45-2,65)

mm (from BDC

Rotational speed rev/min	Control rod travel	Fuel delivery cm³/100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm
1150	10,0+0,1	8,3 - 8,5	0,3 (0,6)			
325	7,0-7,2	0,9 - 1,5	0,3 (0,5)			
	Ì					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Uppe	r rated speed	l rev/min	Intermed	diate rated	speed	(1)	_	rated speed	(3) To	rque control
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control- lever deffection in degrees 7	rev/min 8	Control rod travel mm	rev/min	Control rod travel mm
1	800	0,3-1,0	-	-	-	ca. 28	325	6,7	1150	10,0-10,1
loose	X = 6,	,0					1	min.19,5	500	11,3-11,4 10,6-10,8
ca. 54	4,0	1190-1200 1290-1320 0,3 -1,7			<i>,</i>		325 650-710	7,1-7,3 = 2,0	915	10,0-10,0

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

ピツ	all-load stop	6 Rotational- speed limitat		iel delivery paractenstics	Starting f	uel delivery (5)	43 id	e stop
Test oil to	emp 40°C (104°F) cm ³ /1000 strokes 2	Note: changed to) rev/min 3	rev/min	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm
1150	82,5-84,5 (80,5-86,5)	1190-1200•	500	83,0-86,0 (81,0-88,0)	100	171,0 - 181,0 = 19,5-21,5 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

3.83

BOSCH

Geschaftsbereich KH. Kundendienst. Kfz-Ausrustung. 1980 by Robert Bosch GmbH. Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany Imprime en Republique Federale d. Allemagne par Robert Bosch GmbH.

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WPP 001/4 PEN 10,0 b 1 1. Edition

En

PE 6 P 100 A 320 RS 101 y

RSY 200-900 P 4/305 R

Komb.-Nr. 0 401 876 263

supersedes Volvo-Penta company TD 100 A/PP engine 154 kW (209 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

Testoil-ISO 4113

(2,55-2,75)

mm (from BDC7 RW 9,0 - 12,0 mm

Control rod Fuel delivery travel		Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)		
mm 2	cm·/100 strokes	cm ³ / 100 strokes 4	mm 2	cm ³ /100 strokes	mm 6		
12,0+0,1	13,6 - 13,8	0,3(0,6)					
5,5-5,7	1,1 - 1,5	0,2(0,5)					
	mm 2 12,0+0,1	travel mm 2 cm ¹ /100 strokes 3 12,0+0,1 13,6 - 13,8	travel mm 2 cm ³ /100 strokes cm ³ /100 strokes 4 12,0+0,1 13,6 - 13,8 0,3(0,6)	travel mm 2 cm ¹ /100 strokes 3 cm ³ /100 strokes 4 cm ³ /100 strokes 4 cm ³ /100 strokes 2 cm ³ /100 strokes 4 cm ³ /100 stro	travel		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Uppe	r rated speed	rev/min	Intermediate rated speed			(1)	Lower	rated speed	(3) Torque control		
Degree of deflection	Control rod travel	Control rod travel				Control-		Control rod travel		Control rod travel	
of control lever	mm	mm rev/min				deflection in degrees	rev/min	mm	rev/min	mm	
1	2	3	4	5	6	7	8	9	10	11	
loose	800	0,3-1,0	•	-	-	ca. 18	200	5,1	· -	-	
10036	Х :	= 4,0					100	min.20,0			
İ			•			İ	200	5,5-5,7			
ca. 51	11,0	940-950					260-320	= 2,0			
(28)	4,0	970-1000				ł			Į		
	1135	0,3-1,7				<u></u>					

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

9	N-load stop	6 Rotational- speed limitat		rel delivery aracteristics	Starting f	uel delivery 5	4a) Idle stop	
Test od te rev/mm	emp. 40°C (104°F) cm-/1000 strokes 2	Note: changed to 3 rev/min 3	rev/min	cm ³ /1000 strokes 5	rev/min	cm ³ /1000 strokes 7	rev/min	Control rod travel mm
700	136,0-138,0 (133,0-141,0)	940-950 *	-	-	100	230,0-260	,0 -	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

3.83

BOSCH

Geschaftsbereich KM. Kundendienst. Kfz-Ausrustung. 5. 1980 by Robert Bosch GmbH. Postfach 50. D-7000 Stuttgart 1. Printed in the Federal Republic of Germany Imprime en Republique Féderale d'Allemagne par Robert Bosch GmbH.

WPP 001/4 MWM 14,4 a 1
1. Edition

En

PE 8 P 120 A 520/5 RS 427 RSUV 300-750 P 10 A 320

supersedes: MWM

1- 8-5 -4 - 7 - 2 - 3 - 6 0-30-90-120-180-210-270-300

• ± 0,5 • (± 0,75 °)

company D 234-V 8

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

.75-2.95)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel	Fuel delivery cm ² /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm
750	9,7-9,8	17,1-17,5	0,5 (0,9)			
300	6,5-6,7	2,8-3,6	0,8 (1,2)			
				<u> </u>		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1() /	rated speed Control rod travel mm	rev/min Control rod travet mm rev/min	Intermed	pate rated	speed	Control- lever deflection in degrees 7		rated speed Control rod travel mm	9	rque control Control rod travel mm
loose	800 x =	0,3-1,0 2,75	•	•	•	ca.21	300 300	6,1 6,5-6,7	750 450 320	9,7-9,8 9,7-9,8 10,9-11,5
ca. 55	8,7 4,0 950	790-8 0 800-830 0,3-1,7					320-38	0 = 2,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

29	H-load stop	6 Rotational- speed limitat		el delivery aractenstics	Starting f	uel delivery 5	43 idi	e stop Control rod
rev/min	cm ² /1000 strokes	Note: changed to .) rev/min 3	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes 7	rev/min	travel mm 9
750	171,0-175,0 (168,0-178,0)	790-800*	-	-	100	19,5-21, mm RW	0 -	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

1.83

BOSCH

Geschaftsbereich KH-Kundendienst-Kfz-Ausrustung < 1980 by Robert Bosch GmbH. Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany Imprimé en République Federale d'Allemagne par Robert Bosch GmbH

Test Specifications Fuel Injection Pumps (A) HPP 001/4 MB 11,4 1 6 and Governors

1. Edition

PES 6 P 110 A 820 LS 442-1

RSV 350-1100 P 0/485

Supersede. Daimler-Benz company OM 407 177 kW (241 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Testoil-ISO 4113

3,2 - 3,3 (3,15-3,35)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) .mm 6
1100 350	11,7+0,1 7,8-8,0	12,5-12,7	0,4 (0,8) 0,4 (0,7)		·	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

	rated speed Control rod travel mm		Intermed	diate rated	speed	Control- lever deflection in degrees 7		rated speed Control rod travel mm	IX ~ /	rque control Control rod travel mm
loose	800 x	0,3-1,0 = 3,0	•	-	-	-	-	-	-	-
ca. 48	10,7 4,0 1250	1140-1150 1220-1250 0,3-1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

ピツ	di-load stop emp 40°C (104°F)	Rotational- speed limitat		Fuel delivery characteristics		tuel delivery (5)	Idle stop	
rev/min	cm ³ /1000 strokes 2	changed to 3 rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min	cm ³ /1000 strokes 7	rév/min 8	travel mm 9
1100	125,0-127,0 (122,0-130,0)	1140-1150*	600	117,0-121,0 (114,0-124,0)	100	140,0-160	,0 -	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

Geschaftsbereich KH. Kundendienst: Kfz-Ausrustung < 1980 by Robert Bosch GmbH. Postfach 50: D-7000 Stuttgart 1: Printed in the Federal Republic of Germany Imprime en Republique Federale d'Allemagne par Robert Bosch GmbH.

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WPP 001/4 DAF 11,6 p 1. Edition

En

PE 6 P 120 A 320 RS 443

RSV 250-1100 P 5/458 R

supersed® DAF

See service Information VDT-I-DAF 004

DKS 1160 235 kW (320 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

Testoil-ISO 4113

2,8 - 2,9 (2,75 - 2,95)

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	evn (2)	cm³/100 strokes	cm ³ / 100 strokes	mm	cm³/100 strokes	mm
1	2	3	4	2	3	6
850	10,9+0,1	19,1-19,5	0,5(0,9)			_
250	6,2-6,4	1,1-1,5	0,8(1,2)			
					1	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control lever	r rated speed Control rod travel mm		Interme	chate rate	d speed	Control- lever deflection in degrees 7		rated speed Control rod travel mm	IX 9 1	rque control Control rod travel mm
loose	800 x =	0,3-1,0 5,0	-	-	-	ca. 24	250 250	5,8 6,2-6,4		11,1-11,2 11,3-11,8
ca. 54	9,9 4,0 1425	1140-1150 1260-1290 0,3-1,7					620-680	= 2,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(9	ill+oad stop emp 40°C (104°F)	6 Rotational-speed limital 3a Fuel deliver characters		iel delivery iaracteristics				Idle stop	
rev/min	cm ³ /1000 strokes	changed to) rev/min 3	rev/min	cm³/1000 strokes	rev/min	cm ³ /1000 strokes 7	rev/min 8	travel mm 9	
LDA 850	0,7 bar 191,0-195,0 (188,0-198,0)	1140-1150*	LDA 600	0 bar 133,0-137,0 (130,0-140,0)	100	315,0-355 = 19,5 - 21,0 mm RW		-	

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

DAF 11,6 p

. 2 -

Test at n =

600

rev/min decreasing pressure - in bar gauge pressur

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PE 6 PRS 443 + RSVP 5/458 R	0,36	0,70 0 0,28	10,6 - 10,7 10,9 - 11,0 9,8 - 9,9 10,0 - 10,2

Notes:

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

WPP 001/4FOR 5,9 f 2

1. Edition

Er

PES 6 A 90 D 210 RS 2629

RSV 350-1300 A0B 2143 L

supersedes

company Ford
engine Dover 363

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings, port closing the locating pin must engage in the 2,7-2,8

Port closing at prestroke(2,65-2,85)

mm (from EDC), the pointer.

Rotational speed	Control rod	Fuel delivery	Difference	Control rod	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm (2)	cm ³ /100 strokes	cm ³ / 100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1250	11,7+0,1	5,9-6,0	0,3(0,45			
350	7,2-7,4	0,7-1,3	0,2(0,4)			
	l		l l			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Uppe	r rated speed	rev/min	Interme	diate rated	speed	(4)	Lower	rated speed	I N 3 1	rque control
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control- lever deflection in degrees	rev/min	Control rod travel mm ·	rev/miin	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	•	•	ca. 40	350	6,8	1250	11,7-11,8
	x =	3,5					100	min.19,0	700	11,9-12,0
ca.71	10,7 4,0 1680	1370-1380 1515-1545 0,3-1,7					350 580-6 700	7,2-7,4 40 = 2,0 max. 1,0	·	

The numbers denote the sequence of thy, tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Fu	ill-load stop	6 Rotational- speed limitat		uel delivery naracteristics	Starting f	uel delivery (5)	4a idle stop		
Test oil te rev/min 1	cm ² /1000 strokes	Note changed to) rev/min 3	rev/min	cm ³ /1000 strokes	rev/min 6	cm-/1000 strokes	rev/min 8	Control rod travel mm _ 9	
1250	58,5-59,5 (56,5-61,5)	1370-1380*	-	-	100	19,5-21,0 mm RW	-	-	

Checking values in brackets

* 1 mm less control rod travel than col. 2

2.83

BOSCH

ieschaftsbereich KH: Kundendienst: Kfz-Ausnistung. 1980 by Robert Bosch GmbH: Postfach 50: D-7000 Stuttgart 1: Printed in the Federal Republic of Germany.

Testoil-ISO 4113

WPP 001/4 MB 18,3 d

2. Edition

Testoil-ISO 4113

PE 10 P 110 A 320 LS 3818

RQV 300-1150 PA 486-2

1 - 8 - 7 - 6 - 3 - 5 - 2 - 10- 9 - 4 0 -27 -72 -99 -144-171-216-243-288-315° - 0,5° (- 0,75°) supersed 82 Daimler-Benz company 0M 423 engine: 261 kW (355 PS) Komb.-Nr. O 401 849 706

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

4.0 - 4.1

A. Fuel Injection Pump Settings

mm 2	cm ³ /100 strokes 3	cm³/ 100 strokes 4	travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm
12,1+0,1	12,5 - 12,7	0,4(0,8)			
8,5-8,7	1,4 - 2,2	0,4(0,7)			
	mm 2 12,1+0,1	mm cm³/100 strokes 3 12,1+0,1 12,5 - 12,7	mm cm³/100 strokes 2 cm³/ 100 strokes 4 cm³/ 12,1+0,1 12,5 - 12,7 0,4(0,8)	mm cm³/100 strokes 2 12,1+0,1 12,5 - 12,7 0,4(0,8)	mm cm³/100 strokes 2 100 strokes 4 cm³/100 strokes 2 cm³/100 strokes 2 3 12,1+0,1 12,5-12,7 0,4(0,8)

Adjust the fuel delivery from each outlet according to the values in ____

B. Governor Settings

Upper rated	speed		Intermediate	rated sp	eed	Lower rated	speed		Cirtan	leeve travel
Degree of deflection of control lever	rev/min control rod travel mm	Control rod travel mm rev/men 29	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	revimen	1
1	2	3	4	5	6	7	8	9	10	11
max.	1200	15,2-17,8	_	-	-	ca. 19	100	min.10,2		1,0-1,2
ca. 65	11,1 4,0 1400	1190-1200 1240-1270 0 - 1,0				330-470	300	18,5-8,7		3,4-3,7 4,9-5,3 7,6
						③				

Torque control travel a = 0,5 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test of temp 40°C (104°F) 2		Rotational speed (20) firstation speed	Fuel definings also	pood (9)	late	hual delivery (6) ng point	Torque-control (stravel		
r ov/min 1	ch ³ /1000 strokes 2	79.47mm	4	cm³/1000 strokes 5		cmY1000 strokes		•	
1150	125,0-127,0 (122,0-130,0)	1190-1200 *	900	115,0-119,0 (112,0-122,0) 116,0-121,0 (113,0-124,0)	ĺ	130, 0- 150, 0		12,1+0 12,5+0 12,4+0	

Checking values in brackets

* 1 mm less control rad travel then call 2

3.83

BOSCH

Geschäftsberech (6) Kundenderst (5): Ausrussung C by Reset Brech Grant (0-7 Switger) 1 Profect (20 Printe) is the Federal Results of Germany

WPP 001/4 MB 16,0 i

3. Edition

PE 10 P 100 A 320 LS 811 RQV 300-1250 PA 227 R 1-8-7-6-3-5-2-10-9-4 0-27-72-99-144-171-216-243-288-315 ° + 0,5 ° (+ 0,75 °) company:Daimler-Benz OM 403 Komb.-Nr. 0 401 849 136

All teq: specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Retational speed	Control cod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	cm³/ 100 strokes	mm	cm ³ /100 strokes	mm
1	2	:	4	2	3	6
1250	10,3+0,	10,0-10,2	0,3(0,6)			
300	7,4-7,1	1,8-2,4	0,3(0,5)			7
]	
		 			1	
	ŀ	Ī	- 1	l	•	1

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated	speed			Intermediate	rated ap	eed		Lower rated	speed			œ	Johns travel
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel rum rev/min	$\stackrel{\sim}{\sim}$	Degree of deflection of control lever	rgu/min 5	Control travel men		Degree of deflection of control lever 7	rev/man	Control travel	rod 3	rev/mun	①
max.	1250	15,2-17	,8	-	•		•	ca. 12		min.		250	0,7-1,0
ca.66	9,3 4,0 1450	1290-13 1330-13 0 - 1	60							7,4-7 590 =			3,4-3,7 5,2-5,6 8,0
								②					

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-toad di Control roi Test ail test		Rotational speed (26) immutation speed	Fuel delin high clie s	ony characteristics (Se	Starting Idle switchis	<u> </u>	Torque- travel	control (5)
70-/man 1	citr ² /1000 strokes	704/mm (4)	roviman 4	cm³/1000 strokes	revitana G	cm-V1000 strokes	raviona	travel mm
1250	100,0-102,0 (98,0-104,0)	1290-1300 *	600	78,0-83,0 (76,0-85,0)	100	120,0-140,0		

Chucking values in brackets

* 1 mm less control rod travel then col 2 2.33

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Testoil-ISO 4113

Festoil-ISO 4113

Test Specifications Fuel Injection Pumps 1 and Governors

Fiat 13,8k 3. Edition

PE 8 P 120 A 920/5 LS 3804

R9V300 -1200 PA 357 R

supersedes2.81 company Fiat 8280.02.183

1 - 8 - 4 - 3 - 6 - 5 - 7 - 2 0 -45 -90 -135-180-225-270-315°±0,5° (±0,75°)

257 ky (350 PS)

All test specifications are valid by Boach Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings (3,45-3,65) Port closing at prestrote 3,50-3,60

Rotational speed rev/min	Control rod travel	First delivery cm ³ /100 strokes 3	Cm³/ 100 strokes 4	Control rod travel	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1200	9,3-9,4	17,3 - 17,7	0,5(0,9)			
300	5,9-6,1	2,8 - 3,6	0,8(1,2)			

at the fuel delivery from each guilet according to the values in [

B. Governor Settings

Upper rated	peed			Intermediate	rated ap	••d	Lower rated	peed		Stiding s	loove travel
Degree of deflection of control lever	revision Control rod trave	22/01		Degree of deflection of control lever	rgw/man	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	① mm
1	2	3		4	5	6	7	8	9	10	11
max.	1200	15,2-17,	8				ca. 10		min.7,5 5,9-6,1	300 800 1200	5,2-5,
ca. 63	8,3 4,0 1450	1240-125 1315-134 0 - 1	15				340-445 ③				

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test of temp. 40°C (104°F) 2		Rotational speed (20) imitation stemedate speed			Starting Ide switchin	. •	Tarque-control (travel Control	
rev/min	cm³/1000 strokes		10×/min	cm ³ /1000 strokes	revinia	cm-Y1000 strokes	ro-Ameri	
1	2	3	4	5	•	7	8	•
1200	173,0-177,0 (17 0 ,0-180,0				100	19,5-21,0 mm PW		

Checking values in brackets

* 1 mm less control rad travel then cal. 2

Testoil-ISO 4113

回

Test Specifications Fuel Injection Pumps 1 PP 001/4 FIA 13,8 m and Governors 5. Edition

PE 8 P 120 A 920/5 LS 3804

RQV 300-950 PA 475

supersed&1.82 companyFiat 8285.22

1 - 8 - 4 - 3 - 6 - 5 - 7 - 2 $0 - 45 - 90 - 135 - 180 - 225 - 270 - 315 \pm 0,5°(\pm 0,75°)$

All test specifications are valid for Boach Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Print closing at prestroke (3,45-3,65) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mrs	Fuel delivery cm ³ /100 strokes 3	Cifference cm ³ / 100 strokes 4	Control rock travel name 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm
950	11,1+0,	1 20,7 - 21,1	0,5(0,9)			
300	4,9-5,1	1,5 - 2,1	0,8(1,2)			·

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed		Intermediat	qe beten e	900	Lower rated	speed		G-1-10	Jeeve travel
deflection	rev/min Control rod travel	Control rod travel	Degree of deflection of control		Control rod travel	Degree of deflection		Control rod travel		<u> </u>
lever	700	nen rev/min	lever	rev/min	mm (4)	of control lever	rev/min	mm (3)	rev/min	mm .
1	2	3	4	5	6	7	8	9	10	11
sax.	950	15,2-17,	3 -	-	_	ca.11	100	min.7,5	300	2,0-2,1
ca. 64	10.1	990-1000	,T				300	5,9-6,1	400	3,1-3,5
	4.0	1075-1105					300	-390=2,0	1000	8,3
Ì	1250	0 - 1,0					İ			
						③				

Torque control travel a =

170.00

C. Settings for Fuel Injection Pump with Fitted Governor

Full-toed de Control-roc Test oil ten		intermediate speed			Starting fuel delivery idle switching point		Torque- travel	control (3)
rev/min	c/k³/1000 strokes	routman (4)	(GA)	CM ³ /1000 strokes	rev/min	cm-Y1000 strokes	*******	travel mm
1	2	3	4	5	•	7	•	•
LDA 950	0,7 bar 207,0-211,0 (204,0-214,0)		LDA 950			19,5-21 mmR		

Chucking values in brackets

* 1 mm less control rod travel then col. 2

D. Adjustment Test for Manifold Pressure Compensator

FIA 13,8 m -2-

500	XXXXX			
Pump/governor	Setting	Measurement	Control rod travel	diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)	· · ·
LS 3804 + RQVPA 475	0,7	0,35 0,28 0	11,1 - 10,4 - 9,0 - 8,3 -	10,5

Notes

(1) when n =

revimin and gatige pressure =

bar (= maximum full-load control rod travel)

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 FIA 13,8 I 3. Edition

PE 8 P 120 A 920/5LS 3804

ROV300-1050PA475

$$1 - 8 - 4 - 3 - 6 - 5 - 7 - 2$$

 $0 - 45 - 90 - 135 - 180 - 225 - 270 - 315 - 0,5 (0,75)^{\circ}$

supermedes81 companyiat 8285.22.002 243 k!! (330 PS)

All test specifications are valid for Boach Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(3,45 - 3,65)

Rotational rosed rev/min 1050	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3 20, 2 - 20, 6	Difference cm³/ 100 strokes 4 0,5(0,9)	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
300 1050	+ 0,1 5,9-6,1	2,8- 3,6 c,Sp. 4-5	0,8(1,2) 0,6(1,0)			e e

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

Upper rated speed Intermediate rated speed			eed	Lower rated	speed	0:4:	Sidia alaa aa aa a			
deflection	rev/min Control rod travel	Control rod travel	Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel	Sliding	pleeve travel
lever	mm 2	rev/min (28		rev/min	mm (4)	lever	rev/min	mm 3	rev/min	mm
<u> </u>	4	3	-	5	6	7	8	9	10	11
ca. 68	1050 1350	15,2-17,8 0 - 1				ca. 11		min. 7,5 5,9-6,1	700	1,4-1,5 5,4-5,6
ca. 64	9,9 4,0	1090-1100 1185 - 1215					320-4	20 = 2,0	1050	8,0
						3				

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test of temp. 40°C (104°F) (2)				Starting fuel delivery 6 Idle switching point		Torque- travel	control (5	
rev/min 1	crh ³ /1000 strokes	rev/min 40	rev/min	cm³/1000 strokes	rev/min	cm ³ /1000 strökes	rev/min	travel mm
LDA 1050	0,7 bar 202,0-206,0 (199,0-209,0)		L <u>n</u> a 1950	9 bar 162,0-166,0 (159,0-169,0)		19,5=21 mmE Magnet 24 Y 28,0-36,0	W	

Checking values in brackets

* 1 mm less control rod travel than col. 2

#3

D. Adjustment Test for Manifold Pressure Compensator

Pump/governor	Setting	Measurement	FIA 13,8 1 Control rod travel: difference	
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .	
3804 + 475 €	0,7 bar	0,36 0,30 O	10,9 - 11,0 10,6 - 10,7 9,7 - 9,9 9,3 - 9,4	

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

WPP 001/4 FIA 13,8 L 2 1. Edition

En

PE 8 P 120 A 920/5 LS 3804

RQV 300-1050 PA 565

supersedes company: iat

1 - 8 - 4 - 3 - 6 - 5 - 7 - 2 je 45 ° + 0,5 ° (+ 0,75 °)

engine: 8285.22.002 243 kW (330 PS)

Komb.-Nr. 0 401 848 710

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (3,45-3,65) mm (from BDC)

Rotational speed raw/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1050	10,9+0,1	20,2-20,6	0,5(0,9)			
300	5,9-6,1	2,8-3,6	0,8(1,2)			
		<u> </u>				<u>L</u>

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Testoil-ISO

Upper rated s	peed		Intermediate	rated sp	eed	Lower rated speed Slid			Sliding s	leeve travel
Degree of deflection	rev/min Control	Control rod travel	Degree of deflection		Control rod travel	Degree of deflection		Control rod travel		•
of control lever	rod travel	mm rev/min 2a	of control lever	rev/min	mm 4	of control lever	rev/min	mm ③	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1050	15,2-17,8	-	-	-	ca. 11	100 300	min. 7,5 5,9-6,1	250 520	0,4-0,7 4,1-4,8
ca. 64	9,9 4,0 1350	1090-1100 1185-1215 0 - 1,0				320-420		•	780 1050	5,8-6,0 8,0
						②	ł			

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ter		Rotational-speed (2b) limitation intermediate speed	Fuel delivings ideas	very characteristics (5e)	Starting Idle switchin		Torque- travel	control (5 Control ro
rev/min	cm³/1000 strokes	rev/min 4	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	travel mm
1	2	3	4	5	6	7	8	9
LDA	0,7 bar	1090-1100 *	LDA	0 bar	-	•	-	-
1050	2020-206,0 (199,0-209,0		1050	162,0-166,0 (159,0-169,0				
						l		

Checking values in brackets

* 1 mm less control rod travel than col. 2

2.83

H11

BOSCH

Geschäftsbareich KM, Kundendienst, Kfz-Ausrustung.

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D. Adjustment Test for Manifold Pressure Compensator

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

FIA 13,8 L 2

-2-

Pump/governsa	Setting	Measurement	diminution Control rod travel-
	Gauge pressure = bar	Gauge pressure = bar	difference mm (1)
PE 8 PLS 3804 + RQVPA 565	0,36	0,70 0 0,30	10,6-10,7 10,9-11,0 9,3-9,4 9,7-9,9

Notes.

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 VOL 7,0 k

2. Edition

En

PE 6 P 110 A 320 RS 423

RQV 250-1200 PA 435

Komb.-Nr. 0 401 846 448

supersedas 82 company 01 vo TD 70 G engine: 157 kW (213 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2.95-3.15) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	10,8+0,1	10,2 - 10,4	0,4 (0,8)			$2,5 \pm 0,1$
250	4,5-4,7	0,9 - 1,3	0,3 (0,6)			(2,2 - 2,9)

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed		Intermediate	rated sp	eed	Lower rated	speed	•	Slidina s	leeve travel
deflection	rev/min Control	Control rod travel	Degree of deflection		Control rod travel	Degree of deflection	Ì	Control rodi travel		1
-	uu Log gavel	rev/min 2s	of control lever	rev/min	mm (4)	of control lever	rev/min	тт 3	rev/min	ww
1	2	3	4	5	6	7	8	9	10	11
max.	1200	15,2-17,8	-	-	-	ca. 10	100	min. 6,0	200	1,1-1,4
ca. 65	9,8	1240-1250]	1			250	¹ 4,5-4,7	530	3,5-3,7
	4,0 1400	1320-1350 0 - 1,0					380-4	40= 2,0	870	5,2 - 5,3
 	1400	0 1,0							1200	7,9
						③				

Torque control travel a =

m

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-roo Test oil ten		limitation intermediate speed	high idle s	rery characteristics (5e)	Starting Idle switching		Torque- travel	Control od
rev/min	cm³/1000 strokes	rev/min 44	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	9
LDA	0,7 bar	1240 - 1250*	LDA	0 bar	100	150,0-190,0	-	-
700	102,0-104,0 (99,0-107,0)		700	78,0 - 81,0 (75,0 - 84,0)		iei 20,0-21, mm RW)	

Checking values in brackets

* 1 mm less control rod travel than col 2

VOL 7,0 k - 2 -

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

500			
Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PE 6 PRS 423	0,7		10,8 - 10,9
+PA 435		0	9,5 - 9,6
		0,35	10,4 - 10,5
		0,26	9,8 - 10,0
	<u> </u>	<u> </u>	<u> </u>

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications $\overline{\mathbb{O}}$ Fuel Injection Pumps 1 and Governors

WPP 001/4 UNI 9,6 a 4. Edition

PES6P110A720RS3105

RQ¥275-1150PA642

supersed 2.82 company IVECO-UNIC 8220-22 176 kW (239 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

1150	Rotational speed	Control rod travel mm 2	15-3.35) Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes 4	Centrol rod travel mm	Fuel delivery cm ² /100 strokes 3	Spring pre-tensioning (torque-control valve) mm
275 5.3-5.5 0.9- 1.5 0.4(0,7)	1150	11,7+0,1	12,2-12,4	0,4(0,8)			
	275	5,3-5,5	0,9-1,5	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed			Intermediate	rated sp	eed	Lower rated	speed	•	Sliding s	iceve travel
		Control rod (travel	シ	Degree of deflection		Control rod travel	Degree of deflection		Control rod travel	•	, ①
	rod travel mm	mm rev/min	_ \ 1	of control lever	rev/min	mm 4	of control	rev/min	mm ③	rev/min	mm
1	2	3		4	5	6	7	8	9	10	11
max.	1190	15,2-17,8	8	-	-	-	ca. 11	100	min. 6,9	225	0,4-0,7
ca. 60		1190-120						275	5,3-5,5		3,5-3,8 5,2-5,5
ļ	4,0 1400	1280-131 0-1,0					280-375		•	150	8,0
							③				

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-roc		Rotational-speed 2b	Fuel delin	ery characteristics (5a)	Starting Idle	fuel delivery 6	Torque- travel	control (5)
	10.40°C (104°F) (2)	rev/min 4a		cm ³ /1000 strokes	switchir rev/min		rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 1150	0,7 bar 122,0-124,0 (119,0-127,	1190-1200 * o)	LDA 400	0 bar 87,0-89,0 (84,0-92,0)	100	160,0-180,0	-	•

Checking values in brackets

* 1 mm less control rod travel than col. 2

2.83

Testoil-ISO 4113

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PES6PRS3105 + PA 642	0,23	0,70 0 0,21	11,3-11,4 11,7-11,8 10,5-10,6 10,8-11,0

Notes.

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 STE 12,0 b 1 1. Edition

<u>En</u>

PE 8 P 110 A 121 LS 3113

ROV 250-1100 PA 652

supersedes

Komb.-Nr. 0 401 858 701

1 - 5 - 4 - 8 - 6 - 3 - 7 - 2 je $45^{\circ} \pm 0.5^{\circ} (\pm 0.75^{\circ})$

companySteyr WD 815.64 engine: 240 kW

Testoil-ISO 4113

All test specifications are valid for Boach Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	stroke	(2,75-2,95)	mm (from BDC)			
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min 1	mm 2	cm³/100 strokes 3	cm³/ 100 strokes 4	mm 2	cm ³ /100 strokes 3	mm 8
1107	12,0+0,1	15,8-16,0	0,4(0,75)			
250	1-6,3	1,5-2,1	0,4(0,7)			
Ĺ	<u> </u>			I		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed			Intermediate	rated sp	eed	Lower rated	speed		Stiction	leeve travel
	rev/min Control rod travel mm	Control rod travel mm rav/min	(a)	Degree of deflection of control lever	rev/min 5	Control rod travel mm 4	Degree of deflection of control lever	rev/min 8	Control rod travel mm 3	rev/min	mm 11
max. ca. 47	1140 11,0 4,0 1300	15,2-17 1140-119 1185-12 0-1,0	50 15	1	1	-	ca. 12	100 250 325-	min.7,7 6,1-6,3 385 = 2,0	500	0,7-0,9 3,7-4,1 5,4-5,7 7,9

Torque control travel a = 0,4 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-ros Test oil ten		Rotational-speed 20 limitation intermediate speed	Fuel delic high idle s	very characteristics(5a)	Starting Idle switchir		Torqua- trave	control (5)
rev/min	cm³/1000 strokes	rev/min 44	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	travel mm
1	2	3	4	5	6	7	8	9
LDA 1100	0,9 bar 158,0-160,0 (155,0-163,0		LDA 500 LDA 500	0,9 bar 159,0-163,0 (157,0-165,0) 0 bar 111,0-113,0 (108,0-116,0)		240,0-280,0	310 640	12,0+0, 12,0+0, 12,2+0, 12,4+0,

Checking values in brackets

* 1 mm less control rod travel than col. 2

STE 12,0 b 1

-2-

Test at n =

500

rev/mic reasing pressure - in bar gauge pressur

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PE 8 PLS 3113	0,90		12,4 - 12,5
+ RQVPA 652		0	9,7 - 9,8
		0,60	11,8 - 12,0
		0,48	10,8 - 11,0
			1

Notes:

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications 0 Fuel Injection Pumps 1 and Governors

WPP 001/4 SCA 8,0 i

3. Edition

PE 6 P 110 A 720 RS 3034

ROV 20C-1200 PA 554

supersedes, 81 companyScania engine: DS 805

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

00 strokes mm 6
2,5+0,1
(2,2-2,9)

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

Upper rated:	speed		Intermediate rated speed Lower rated speed Sliding si					peed Sliding sleeve travel		
Degree of deflection	rev/min Control	Control rod ta	denection		Control rod travel	deflection travel		Control rod travel	Control rod	
of control lever	rod travel	mm (2s	of control lever	rev/min	mm (4)	of control lever	rev/min	mm (3)	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1200	15,2-17,8	-	-	-	ca.10	100	min.6,8	150 500	0,5-0,8
ca. 61	11,3 4,0 1500	1240-1250 1380-1410 0-1,0	9				225 320 - 3	1 5,3-5,5 80=2,0	850 1200	3,8-4,5 5,9-6,1 8,4
	1500	0-1,0	1			3				

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Tost oil temp. 40°C (104°F) (2)		Rotational-speed 20 limitation intermediate speed		rery characteristics (5e)	Starting Idle switchir	\mathbf{C}	Torque- travel	control 5
rev/min 1	cfh³/1000 strokes	rev/min 4a 3	rev/min 4	cm ³ /1000 strokes 5_	rev/min	cm ³ /1000 strok es 7	rev/min 8	travel mm 9
LDA 700	0,7 bar 121,0-123,0 (119,0-125,0)	1240-1250*	LDA 1200 LDA 500	0,7 bar 120,5-123,5 (118,0-126,0) 0 bar 87,0-91,0 (85,0-93,0)	100	190,0-240,0 =20,0-21,0 mm RW	•	•

Checking values in brackets

* 1 mm less control rod travel than col. 2

BOSCH

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

SCA 8,0 i

-2-

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PE 6 PRS 3034 +RQV PA 554	0,70	0 0,33 0,22	12,3-12,4 11,1-11,2 12,0-12,1 11,2-11,4

Notes:

(1) when n =

rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 SCA 11,0 r6 1. Edition

_En

PE 6 P 110 A 720 RS 3040

ROV 200-1000 PA 555-1

supersedes company: Scania

engine: DS 11

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke mm (from BDC) = RW 9.0-12.0 mm (3.25-3.45) Control rod travel Fuel delivery Spring pre-tensioning (torque-control valve) Rotational speed Fuel delivery Difference Control rod cm³/ rev/min cm³/100 strokes cm³/100 strokes 100 strokes mm 2.5 ±0.1 700 13,6+0,1 16,7-16,9 0,4 (0,8) 4,4-4,6 1,6-2,0 225 0,3(0,5)(2,2-2,9)

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Testoil-ISO 4113

ceffection	rev/min Control rod travel mm	Control rod travel mm rev/min 2a	deflection of control	rated sp rev/min 5	Control rod travel mm 4	Lower rates Degree of deflection of control lever 7	speed rev/min 8	Control rod travel mm 3	Sliding s rev/min 10	mm
max. ca. 60		1040-1050 1140-1170	3 -	-	-	ca.10 250-35 3	225	min. 5,9 4,4-4,6	150 430 720 1000	0,5-0,6 3,1-3,6 5,1-5,6 7,9

Torque control travel a =

ШШ

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-ros Test oil ten		Rotational-speed (20) limitation intermediate speed	Fuel delivinghide s	ery characteristics (5e)	Starting Idle awitchir		Torque- travel	control (5)
rev/min	cm³/1000 strokes	rev/min 4a	rs:/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	travel mm
LDA 700	0,7 bar 167,0-169,0 (164,0-172,0)	1040-1050*	LDA 1000 LDA 500	169,0-175,0 (167,0-177,0 0 bar		220,0-270,0 =RW 20,0- 21,0 mm	-	

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testatn =

500

rev/min decreasing pressure - in bar gauge pressure

SCA 11,0 r 6

-2-

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PE 6 P RS 3040	0,41		13,2-13,3
+ ROV PA 555-1		0,70	13,6-13,7
,		0	12,0-12,1
		0,26	12,3-12,5
		0,26	12,3-12,5

Notes.

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

(3,

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 MAN 17.4a

2. Edition

Testoil-ISO 4113

0

RQV 250-1150 PA 562 PE 10 P 110 A 520/4 LS 846

supersedes

companyMAN

engine: D 2540 MT

323 kW (439 PS)

1 - 8 - 7 - 6 - 3 - 5 - 2 - 10 - 9 - 4 $0 - 27 - 72 - 99 - 144 - 171 - 216 - 243 - 288 - 315 <math>\stackrel{+}{=} 0,5^{\circ} (\stackrel{+}{=} 0,75^{\circ})$

All test specifications are valid for Brach Fuel Injection Pump Test Benches and Testers

A, Fuel Injection Pump Settings

Port closing at prestroke

3,0 - 3,1 (2,95-3,15) mm (from BDC) Zy1. 10

Rotational speed rev/min 1	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	11,9+0,1	14,0 - 14,2	0,4(0,8)			
250	6,9-7,1	1,1- 1,7	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

Upper rated s	peed		Intermediate	rated sp	eed	Lower rated	speed		Sliding s	leeve travel
deflection	rev/min Control rod travel	Control rod travel	Degree of deflection of control		Control rod travel	1.2.1		Control rod travel		0
lever		rev/min (2s)	lever	rev/min	mm (4)	lever	rev/min	mm (3)	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1150	15,2-17,8	•	-	-	ca.12	100 250	min.8,6 6,9-7,1	200 500	0,6-0,8 4,3-5,3
ca.64	10,9 5,0 1450	1190-1200 1335-1365 0 - 1,0					}	60 = 2,0	850 1150	6,6-6,7 8,4
						(3)				

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Control-roo	Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2			Fuel delivingh ide s		Starting Idle switching		Torque- travel	control (5) Control rod
revimin 1	ch ³ /1000 strokes	rev/min	•	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min 8	travel mm
LDA 1150	0,9 bar 140,0-142,0 (137,0-145,0)	1190 - 12	200*	LDA 750 LDA 500	0,9 bar 134,0-138,0 (131,0-141,0) 0 bar 115,0-118,0 (112,0-121,0)		145,0-175,0	•	•

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test at n = 500	est at n = 500 rev/min decreasing pressure ~ in bar gauge pressure XXXXXXX									
Pump/governor	Setting	Measurement	diminution Control rod travel- difference							
	Gauge pressure =	bar Gauge pressure =	bar mm (1)							
LS 846 +	0,9		11,9 - 12,0							
PA 562		0,38	11,7 - 11,8							
		0,33	11,3 - 11,5							
		0	11,1 - 11,2							
-										

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

estoil-ISO 4113

. Test Specifications Fuel Injection Pumps 2 and Governors

WPP 00 1/4 MB 21,9a

3. Edition

PE 12 P 120 A 320 LS 3819

RO 750 PA 635

supersedes6.82 company: Daimler-Benz

1- 5- 9- 8- 3- 4- 11- 10- 2- 6- 7- 12 0-15-60-75-120-135-180-195-240-255-300-315° -0.5° (-0.75°)

OM 424 A 330 kW (449 PS)

Generator

Komb.-Nr. 0 401 840 705

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(3.95-4.15)

mm (from BOQ1y1. 12

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	©iference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	11,9+0,	1 19.3 - 19.5	0,5(0,8)			
300	4,8-5,	0 1,4 - 2,0	0,8(0,7)			
		:				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin	g of slider ck	വ	Full-load : Setting po	•	•	cifications (4)	Idle spec	•		critications (5)	Torque (control (3)
rev/min 1	Control rod travel mm	. ·	rev/min 3		Control rad traval	rev/min	rev/min 7	Centrol red travel rmm 8	rev/min 9	Control rod travel mm	rev/mm	travel
-	-		-	•	10,9 4,0	750-755 780-790	-	-	-	-	-	•
Torque-c	control travel		<u> </u>				<u> </u>	<u> </u>	750	-755 min	4	1 mm less contro

Torque-control travel on flyweight assembly dimension a =

Speed regulation: Al

rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de governor co Test oil terr		Control rod stop 3	Fuel deliv	ery characteristics (3)	Starting title spec	Audi delivery ed
revimin 1	cm³/-1000 strokes 2	rev <i>i</i> men 3	rev <i>le</i> nan 4	cm³/-1000 strokes \$	rawkman	us tradi cm ³ /1000 strokes/min 7
700	193,0 - 195,0 (190,0 - 198,0)		-		100	180,0 - 200,0

Values apply to

engine nozzle-and-holder assemblies 1 683 901 019 and engine fuel-injection tubing 1 680 750 067

PE 12 P 120 A 320 LS 3819

RO 900 PA 634

supersedes-

company: Daimler-Benz OM 424 A

374 kW

1 - 5 - 9 - 8 - 3 - 4 - 11 - 10 - 2 - 6 - 7 - 12 0 -15 -60 -75 -120-135-180-195-240-255-300-315° \pm 0,5°(\pm 0,75°)° Values apply to

engine nozzle-and-holder assemblies 1 688 901 019 and engine fuel-injection tubing 1 68
All test specifications are valid for Boach Fuel Injection Pump Test 8 1 680 750 067

4,0 - 4,1

Komb.-Nr. 0 401 840 704

A. Fuel Injection Pump Settings

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
850	12,0+0,1	17,9-18,1	0,5 (0,9)			
300	4,8-5,0	1,2-2,0	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in ...

B. Governor Settings

Checking of slider PRG check	Full-load speed in Setting point	guistion Test specifications (4)	Idle speed regular Setting point		Torque control
Control rod travel mith	Cartesi and teams rev/min mm	Control	Custed red transit revisions	Control rod travel reviews	Control rod travel revinin mm
		10,8 4,0 935-945 1050 max. 1,0			

h lana control rod travel

900 - 905 min"

C. Settings for Fuel Injection Pump with Fitted Governor

	ativery on control lever (2)	Control rod stop 3	Fuel delive	ary characteristics 39	Starting I tille spec	d (mile)
Personal 1	cm ³ /-1000 strokes 2	rovinia 3	rev/min 4	cm ³ /-1000 strokes 5	rayimus 6	right transf can ³ /1000 strokes / mm 7
850	179,0-181,0 (176,0-184,0)	-	-	-	100	180,0-200,0

Checking values in brackets

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps 2 and Governors

WPP 001/4 MAN 17,4 b 3

1. Edition

PE 10 P 120 A 520/5 LS 850

RO 750 PA 404-2

1-8-7-6-3-5-2-10-9-4 0-27-72-99-144-171-216-243-288-315° -0,50 (-0,75°)

Values apply to

engine nozzle-and-holder assemblies 1 688 901 019 and engine fuel-injection tubing 1 680 750 067

All test specifications are valid for Beach Fuel Injection Pump Test Benches and Testers

COMPANY MAN engine: D 2540 MLE 283 kW

> Komb.-Nr. 0 401 849 164

A. Fuel Injection Pump Settings

Port closing at prestroke

(2.95 - 3.15)

mon from BDC) Zyl. 10

Rotational speed revirus	Control rod traval	Fuel delivery cm ³ /100 strokes 3	Difference cm ² / 100 strokes 4	Control rod traval mm	Fuel delicary cm ³ /100 strokes 3	Spring are-tensioning florquis-control valves mm 6
700	11,8+0,1	19,1-19,4	0,5(0,9)			
250	6,6-6,9	2,2-2,6	0,8(1,2)			
			. [

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin PhG che	(1)	Full-toad : Setting po			ofications (4)	tdle spec Setting p			calications (5)	Torque '	3
	Control rod travel min	rovimia 3		Control red teach reven 5	reviews	reulman 7	Cardeni mai Transi man B		Control rod travel mm	revirus	Control rod travel mm
•	-	•	-	10,8 4,0 900	750-755 780-790 0-1,0	-	-	-	•	•	-

750-755 min-1

C. Settings for Fuel Injection Pump with Fitted Governor

Banksula, (telivery on control lever mp. 40°C (100°F)	Combral road steep 3	Fuel deliv	ery characteristics 39	Starting had delivery 66		
routmen 1	cm ³ /-1000 strakes 2	3	renteus 4	cm ³ /-1000 strokes 5	raviana 6	on tool cm ³ /1000 strokes / mm 7	
700	191,0-194,0 (188,0-197,0)		•	•	100	19,5-21,0 mm RW	

Checking values in brackets

2.83

13

Test Specifications Fuel Injection Pumps (2) and Governors

WPP 001/4 MAN 11,4 c

1. Edition

RQ 750 PA 566

Values apply to engine nozzle-and-holder assemblies 1 688 901 019 and engine fuel-injection tubing

MAN D 2566 MLE 198 kW

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

PES 6 P 120 A 720 LS 457

mm (from 80c) Zy1. 6 =

RW 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm
700 250	12,5+0,1 6,1-6,3	20,2-20,4 1,5-2,1	0,5(0,8) 0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

PRG che			Full-toad : Serting po	pint .	Test spec	odcations (4)	idle spec Setting p	-		calcations (5)	Torque (control (3)
	Control rad traval stan 2)	r _{julmin} 3		Control end transl stem 5	restmin	r gv/min 7	Control red transl mem 8	1	Control rod travel nun 10	rev/min 11	Control rod
•	•		-	-	11,5 4,0 900	750-755 775-785 0-1,0	•	-	-	•	-	•
						•				55 min-1		

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	control lower rep. 40°C (104°F)	Control rod stop 3 Fuel delivery characteristic		ory characteristics (3:	Starting (tual delivery 6
1	cm ³ !-1000 strokes 2	rewlmin 3	rev/min 4	cm ³ /-1000 strokes 5	ree/min	od tradi cm ³ /1000 strokes-/ mm 7
700	202,0-204,0 (199,0-207,0)	•	•	•	100	19,5-21,0 mm RW

Checking values in brackets

J4

0

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 BET 8,8 a

2. Edition

PE 6 P 120 A 320 RS 383

RQV 250-1200 PA 425 R

Values apply to engine nozzle-and-holder assemblies 1 688 901 019 and engine fuel-injection tubing

1 680 750 067

supersedes 2.82 RVI MIDS 062030 165,5 kW (225 PS)

> Komb.-Nr. 0 401 846 404

at specifications are velid for Boach Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,8 - 2,9 (2,75-2,95) mm (from BOC)_ RW 9.0 - 12.0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control velve) mm 6
1200	13,9+0,1	14,8 - 15,1	0,5(0,9)			
275	4,7-4,9	0,8 - 1,4	0,8(1,2)			

B. Governor Settings

Upper rated s	pood			Intermediate	rated ap	eed		Lower rated	speed		94	dana basad
Degree of deflection	rev/min Control	200	\odot	Degree of deflection		Contr		Degree of deflection		Control radi		1
of control lever	rod travel rrsts 2	revision (3	②	of control lever 4	r ov/min 5	6	•	of control lever 7	rowania 8	- ()	nn iı
max.	1240	15,2-17	,8	-	-		-	ca. 12	100 275	min.6, 4,7-4,		0,2-0,6
ca. 66	12,9 4,0 1500	1340-13	70						2,3	- ,,,	870 1200	4,8-5,0 8,0
ę	1300	0 - 1	,0					(3)				

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational speed (20) imitation retermediate speed	Fuel delin high idle t	ery characteristics(5) pool (5)	Idle		Torque-control 5 travel		
rev/man	CM2/1000 strokeo	rev/min (4)	rev/min	cm³/1000 strokes	switchin revinun	1	rev/min	Control root travel men	
1	2	3	4	5	•	7		9	
LDA 1200	0,7 bar 148,0-151,0 (145,0-154,0		LDA 700	0,7 bar 144,0-1\$8,6 (141,0-151,6		120,0-140,0 = RW 19,5 - 21,0 mm	1	-	

Checking values in brackets

* 1 mm less control rod travel than col. 2

2.83

15

BET 8,8 a - 2 -

Test at n =

500

rev/min decreasing pressure - in ber gauge pressur

Pump/governor	Setting	Meesurement	diminution Control rod travel- difference
	Gauge pressure = ber	Gauge pressure = bar	mm (1) .
PE 6 PRS 383 + RQVPA 425 R	0,23	0,70 0 0,19	13,4 - 13,5 13,9 - 14,0 12,2 - 12,3 12,6 - 12,8

Notes.

(1) when n =

rev/min and gauge pressure

ber (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 RVI 8.8 d 1 1. Edition

PES 6 P 120 A 320 RS 419

ROV 275-1100 PA 495

Values apply to

0

Testoil-ISO 4113

engine nozzle-and-holder assemblies 1 688 901 019 1 680 750 067 company: RVI MIDR 062045 206 kW (280 PS)

and engine fuel-injection tubing

Komb.-Nr. 0 402 046 249

All that specifications are valid for Boach Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Sattings
2,8 - 2,9
Port closing at prestroke (2,75-2,95) mm mm (from BDC)

Rotational speed rev/min 1	1	Fuel delivery cm ³ /100 strokes 3	Difference cm ² / 100 strokes 4	Control rod travel mm	Fuel delivery cm ² /100 strokes 3	Spring pre-tensioning (torque-control valve)
1100	10,3+0,	17,7 - 18,1	0,4(0,8)			
275	3,4-3,6	0,5 - 1,1	0,4(0,7)			
	ļ			ļ		
		<u> </u>				

fuel delivery from each outlet according to the values in [

B. Governor Settings

Upper rated a	peed		Intermediate	rated ap	eed	Lower rated	speed		25.50		
deflection		travel 🕒	Degree of deflection of control		Control rod travel	Degree of deflection		Control rod travel	Stiding steeve travel		
Nover		rev/min 2s	lever	rev/min	- ①	of control	rev/min	mm ③	į.	mm	
max.	1150	15,2-17,8		-	0	ca. 8	100	min.5,0	¹⁰ 250	1,0-1,2	
, max.	1130	15,2-17,0				Ca. o	275	3,4-3,6		4.0-4.6	
ca.64	9,3 4,0 1350	1155-1165 1220-1250 0 - 1,0				280-395		, , , , ,		5,9-6,1 8,1	
						③					

Torque control travel a "

C. Settings for Fuel Injection Pump with Fitted Governor

Market CONTINUE	travel mm
1100 177,0-181,0 700 163,0-196,0	•

Checking values in brackets

* 1 mm less control rod travel than col. 2

- 2 -

Test at n =

500

rev/min pressure - in bar gauge pressure

RV1 8,8 d 1

300			
Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = ber	mm (1) ,
PES 6 PRS 419 + RQVPA 495	0,25	0,70 0 0,20	9,7 - 9,8 10,3 - 10,4 8,3 - 8,5 8,8 - 9,0

Notes

(1) when n =

rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps 1 WPP 001/4 MB 14,6 o and Governors 2. Edition

PE 8 P 120 A 320 LS 3816 RQV 350-1150 PA 590 1 - 8 - 7 - 2 - 6 - 3 - 54 je 45° ± 0,5° (± 0,75°) Values apply to engine nozzle-and-holder assemblies 1 688 901 019 and engine fuel-injection tubing 1 680 750 067

supersedbe.82 companyDaimler Benz engine: OM 422 A 243 kW (330 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

4,0 - 4,1Port closing at prestroke mm (from BDC) 3.95-4.15) Rotational speed Fuel delivery Spring pre-tensioning (torque-control valve) Control rod Difference Control rod **Fuel delivery** cm³/ 100 strokes rev/min cm³/100 strokes cm³/100 strokes **COCO** mm 1150 11.0+0.1 15,8-16,0 0.5(0.9)350 4,9-5,1 1,2-1,8 0,8(1,2)

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Testoil-ISO 4113

Upper rated :	peed		Intermediate	rated sp	bee		Lower rated	speed	_		Stiding sleeve travel	
	Control	Control rod travel	Degree of deflection		Control rod travel		Degree of deflection		Control root travel	đ	0	
lever	rod travel	rev/min 2s	of control lever	rev/min	mm (3	of control	rev/min	mm (③	rev/min	mm .
1	2	3	4	5	6		7	8	9		10	11
max.	1150	15,2-17,8	-	-	-		ca. 10	100	min.6,	,0	300	0,6-0,9
ca. 63	10.0	1190-1200	†					350	4,5-4,	6	580	3,6-3,8
		1270-1300		Ì							870	5,2-5,4
	1400	0 - 1,0					370-480				1150	7,6
			ļ				③					

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-toed delivery Control-rod stop Teet oil temp. 40°C (104°F) 2		Rotational-speed 20 limitation intermediate speed	Fuel delin high idle s	rery characteristics (5e)	Starting lidle switching	• . •	Torque- travel	Control cod
rev/min 1	cft ³ /1000 strokes 2	rev <i>lm</i> in 49 3	rev/min 4	cm ³ /1000 strokes 5	rev/min	cm ³ /1000 strokes 7_	rev/min 8	travel mm
LDA 1150	0,7 bar 158,0-160,0 (155,0-163,0)		LDA 600 LDA 500	0,7 bar 166,0-172,0 (163,0-175,0) 0 bar 140,0-142,0 (137,0-145,0)		140,0-160,0	850	11,0+0, 11,4+0, 11,5+0,

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test at n =

500

rev/min decreasing pressure ~ in bar gauge pressure

MB 14,6 o

-2-

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PE 8 PLS 3816 +PA 590	0,47	0,70 0 0,40	11,4-11,5 11,6-11,7 10,5-10,6 10,9-11,0

Notes:

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

J10

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 VOL 12.0 d 1 3. Edition

PE 6 P 120 A 320 RS 3050

ROV 250-1100 PA 611

supersedes 82 ov folyman ov engine: TD 120 F

Values apply to

Testoil-ISO 4113

engine nozzle-and-holder assemblies 1 688 901 019 and engine fuel-injection tubing 1 680 750 067

All test specifications are valid for Boach Fuel Injection Pump Test Sending and Testers

A. Fuel Injection Pump Settings

mm (from BDC) - RW 9,0 - 12,0 mm Port closing at prestroke (2.35-2.55)

Rotational speed rev/min t	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 stroke ₃	Centrol rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	13,1+0,	1 24,2-24,5	0,5(0,9)			2,5 [±] 0,1
250	3,8-4,0	2,2-2,6	0,5(0,7)	-		(2,2-2,9)
						L

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed			Intermediat	rated sp	eed		Lower rated	speed			Sliding sleeve travel		
deflection		Control rod travel	©	Degree of deflection		Control (bor	Degree of deflection		Control ro	đ		0	
of control	rod travel	rev/min	②	of control lever	rev/min	mm	(4)	of control	rev/min	mm I	(3)	rev/min	mm	
1	2	3		4	5	6		7	8	9		10	11	
max.	1180	15,2-17	,8	-	-	-		ca. 7	100	min. 5	,3	200	0,7-0,9	
ca. 65	12,1 4,0 1350	1160-117 1225-125 0 - 1,0	55						3	3,8-4, 350=2,0			4,2-4,8 6,4-6,6 7,3	
								<u> </u>						

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2		Rotational-speed 20 limitation intermediate speed	Fuel delivingh idle s		Starting Idle switchir		Torque- travel	control 5
rev/min	cfh³/1000 strokes .	rev/min 4	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	travel mm
1	2	3	4	5	6	7	8	9
LDA 700	1,2 bar 241,5-244,5 (238,5-247,5)		LDA 700	0 bar 142,5-146,5 (139,5-149,5	100	20.0-21,0 mm RW	•	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

1.83

BOSCH

Test at n =

500

rev/min decreasing pressure ~ in the gauge pressure

VOL 12,0 d 1 -2-

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 6 PRS 3050 + RQV PA 611	0,67	1,2 0 0,30	12,2-12,3 13,1-13,2 9,2- 9,3 10,5-10,7

Notes:

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 MAN 17,4 b 1

1. Edition

PE 10 P 120 A 520/4 LS 850

ROV 250-1150 PA 647

1-8-7-6-3-5-2-10-9-0-27-72-99 -144-171-216-243-288-315° +0,5° (+0,75°) supersedes company MAN

engine: D 2540 MLE 405 kW

Values apply to

engine nozzle-and-holder assemblies 1 688 901 019

All test specifications are valid for Bosch Fuel Injection Pump lest Benchez and Tasters 1 injection tubing 1 680 750 067

A. Fuel injection Pump Settings

Port closing at pret	troke (2	2,95-3,15)	mm (from BDC)			
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	100 strokes	mm .	cm ³ /100 strokes	ww
1	2	3	4	2	3	6
1150	11,2+0,1	18,5-18,8	0,4(0,9)			
250	6,2-6,4	1,2-1,8	0,8(1,2)			
	ł ·					
6.						
	<u> </u>					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Testoil-ISO 4113

Upper rated s	beed		Intermediate	rated sp	eed	Lower rated	speed	•	Sliding s	leeve travel
deflection	rev/min Control rod travel	Control rod ta	Degree of deflection of control	,	Control rod travel	Degree of deflection of control		Control rod travel		0
lever	നന	rev/min (2a)	lever	rev/min	mm (4)	lever	rev/min	mm (3)	Lea/Liu	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1200	15,2-17,8	-	-	_	ca. 12		min.7,8 6,2-6,4		0,6-0,8 4,9-5,2
ca. 63	10,2 4,0 1400	1190-1200 1255-1285 0-1,0					1			6,1-6,4 7,5
					<u> </u>	3a	L		<u> </u>	

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2		Rotational-speed 2b limitation intermediate speed			Starting Idle switching	, •	Torque- travel	Control rod
rev/min	cm³/1000 strokes	rev/min 49	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	travel mm
LDA 1150	1,0 bar 185,0-188,0 (182,0-191,0)	1190-1200*	LDA 500	0 bar 119,0-122,0 (116,0-125,0		205,0-225,0	•	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

J13

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

MAN 17,4 b 1

-2-

200			
Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PE 10 PLS 850 +RQV PA 647	1,0	0 0,65 0,54	11,2-11,3 9,6-9,7 10,8-10,9 10,0-10,3

Notes:

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

J14

Test Specifications

Fuel Injection Pumps 1

and Governors

WPP 001/4 BRE 30.8 a

1. Edition

PE 8 P 130 A 520/6 LS 450

ROV 300-900 PA 500

1-2-6-3-4-5-7-8 je 45° -0,5°(-0,75°) Values apply to

engine nozzle-and-holder assemblies 1 688 901 019 and engine fuel-injection tubing 1 680 750 067

All test specifications are valid for Boach Fuel Injection Pump Test Benches and Testers

supersedes

companyBreda

engine: ID 36 N 8 V

Komb.-Nr. 0 401 838 020

A. Fuel Injection Pump Settings

Port closing at pres		3.45-3.65)	mm (from BDC)
Rotational speed	Control rod	Fuel delivery	Difference
	O SAMO		cm3/

Rotational speed	travel	Fuel delivery	Difference cm ³ /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min 1	mm 2	cm ³ /100 strokes 3	100 strokes 4	mm 2	cm³/190 strokes 3	mm 6
900	9,2-9,3	16,5-16,8	0,5(0,9)			
300	6,8-7,0	2,2-2,8	0,8(1,2)		ð	
	ļ					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed		Intermediate	rated sp	00 d	Lower rated	speed		Slidings	Sliding sleeve travel	
deflection of control	rev/min Control rod travel	Control rod travel	Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel	٠.	1	
lever 1	mm 2	rev/min (22) 3	lever 4	rev/min 5	mm (4)	lever 7	rev/min 8	mm (3) 9	rev/min 10	mm 11	
max.	990	15,2-17,8	-	-	-	ca.16			250 470	1,0-1,3 3,8-4,4	
ca. 57	8,2 4,0	940-950 1000-1030					300	1- 3 3-	680 900	5,6-5,8 7,6	
	1150	0-1,0				300-395	!				
						3					

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp, 40°C (104°F) (2)		Rotational-speed (20) limitation intermediate speed	Fuel delin high idle s	very characteristics (5e)	Starting Idle switching		Torque-control 5	
rev/min		rev/min 4	rev/min	cm³/1000 strokes	rev/min		rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
900	165,0-168,0 (162,0-171,0)		•	•	100	19,5-21,0 mm RW	•	•

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 BRE 9,6 c 1. Edition

<u>En</u>

PE 6 P 120 A 320 RS 461

RQV 300-1500 PA 500

supersedes Breda company:ID 32 engine: 243 kW

Values apply to engine nozzle-and-

0

engine nozzle-and-holder assemblies 1 688 901 019 and engine fuel-injection tubing 1 680 750 067

Komb.-Nr. 0 401 846 478

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Rotational speed	Control rod travel	Fuel delivery	Difference cm ³ /	Control rod travel	Fuel dalivery	Spring pre-tensioning (torque-control valve)
rev/min 1	mm 2	cm ³ /100 strokes 3	100 strokes	mm 2	cm ³ /100 strokes 3	mm 6
1500	10,0+0,	14,5-14,9	0,5(0,9)			
300	7,1-7,3	1,5-2,1	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed		Intermediate	rated sp	eed	Lower rated	speed	_	Stiding s	leeve travel
deflection	Control	Control rod travel	Degree of deflection	l	Control rod travel	Degree of deflection		Control rod travei		①
jever	rod travel	rev/min 2a	of control lever	rev/min	mm 4	of control lever	rev/min	mm ③	rev/min	നന
1	2	3	4	5	6	7	8	9	10	11
max.	1500	15,2-17,8	-	-	-	ca.14	100 300	min.8,7 7,1-7,3	250 670	1,0-1,2 3,8-4,0
ca. 62	9,0	1540-1550 1625-1655						, , , 1 - , , 3	1080 1500	5,9-6,1
	4,0 1750					335-450			1300	0,0
				<u> </u>		③				

Torque control travel a =

ma

C. Settings for Fuel Injection Pump with Fitted Gevernor

Full-load de Control-roo Test od ten		Rotational-speed 20 limitation intermediate speed	Fuel delivings ide s	reny characteristics (5a) poed (3b)	Starting Idle switching	. •	Torque- travel	Control rod
rev/min	cm³/1000 strokes	rev/min 40	rev/min	cm³/1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	travel mm
1500	145,0-149,0		•	•	100	19,5-21,0	-	9
	(142,0-152,0)				mm RW		
ĺ								
						•		

Checking values in brackets

*1 mm less control rod travel than coi. 2 2.83

BOSCH

Geschäftsbereich KM: Kungendienst, Kfz-Ausrustung. C. by Robert Bosch GmbN, D-7: Stuttgert 1. Posifisch 50: Printed in the Federal Republic of Germany monima en Beachbrige Berseile if Alternance der Robert Bosch GmbH.

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 BEE 9,7 a

1. Edition

PE 6 P 120 A 320 RS 460

RQV 300-1500 PA 500

1- 2- 3 - 4 - 5 - 6 0-45-120-165-240-285 ° - 0,5 ° (- 0,75 °)

Breda SE CI mecimo 367,5 kW

> Komb.-Nr. 0 401 846 477

Na test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings 3,5-3,6

Rotational speed	Control rod travel	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
røsinin 1	mm 2	3	4	2	3	6
1500	10,0+0,1	14,6-14,9	0,5(0,9)			
300	7,8-8,0	1,4-2,0	0,8(1,2)			
				I		
					·	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Testoil-ISO 4113

Upper rated	speed		Intermediate	rated sp	eed	Lower rated	speed.		Sliding s	leeve travel
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min 2s	Degree of deflection of control lever	rev/min 5	Control rod travel mm 4	Degree of deflection of control lever	rev/min	Control rod travel mm 3		mm 11
max.	1500	15,2-17,8	-	-	•	ca.18	100	min.9,4	250	1,6-1,8
ca.63	9,0 4,0 1750	1540-1550 1625-1655 0 - 1,0				335-440 ⁶	300	17,8-8,0	670 1080 1500	4,0-4,2 6,2-6,4 9,1
						<u></u>		<u> </u>	<u> </u>	

Torque control travel # =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load of Control-ro Test oil ter	d stop	Rotational-speed 20 limitation intermediate speed	Fuel deliv		Starting Idle switching	. •	Torque- travel	Control rod	
rev/min	cm³/1000 strokes			v/min cm³/1000 strokes		cm ³ /1000 strokes	travel rev/min mm		
1	2	3	4	5	6	7	8	9	
1500	146,0-149,0 (143,0-152,0		-	-	100	19,5-21,0 mm RW	-	-	

* 1 mm less control rod travel than col. 2

Checking values in brackets Values apply to

engine nozzle-and-holder assemblies 1 688 901 019 1 680 750 067 and engine fuel-injection tubing

2.83

BOSCH

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 BRE 23,1 a 1. Edition

PE 6 P 130 A 320/3 LS 449

RQV 300-900 PA 500

supersedes companBreda ID 36 N 6 V

1 - 6 - 5 - 4 - 3 - 2 $0 - 75 - 120 - 195 - 240 - 315^{\circ} \stackrel{+}{=} 0,5^{\circ} (\stackrel{+}{=} 0,75^{\circ})$ Values apply to

engine: 225 kW

engine nozzle-and-holder assemblies 1 688 901 019 and engine fuel-injection tubing 1 680 750 067
All that specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Komb.-Nr. 0 401 836 022

A. Fuel Injection Pump Settings
3,5 - 3,6
Port closing at prestroke (3,45-3,65) mm

mm (from 8DC)

		(3,45-3,05)				
Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
900	9,2-9,3	16,5-16,8	0,5 (0,9)			
300	6,8-7,0	2,2-2,8	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

Testoil-ISO

Upper rated s	peed		Intermediate	rated sp	eed	Lowerra	ited speed		Stiding	leeve travel
1	rev/min Control rod travel	Control rod ta travel	Degree of deflection of control		Control rod travel	Degree deflection of control	on .	Control rod travel	S. S. S. S. S. S. S. S. S. S. S. S. S. S	0
iever	uuu	rev/min (2s)	lever	rev/min	mm (4	lever	rev/min	mm (3)	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	990	15,2-17,8	-	-	-	ca. 10	1	min. 8,4	250	1,0-1,3
ca. 57	8,2	940-950				ļ.	300	6,8 - 7,0		3,8-4,4
• • • • • • • • • • • • • • • • • • •	4.0	1000-1030				ŀ			680	5,6-5,8
	1150	0-1.0			1	β00-3	95		900	7,6
!		0 ,,0				i	1			
1										
				L		③				

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ter		Rotational-speed 2b limitation intermediate speed	Fuel delichigh idle s	rery characteristics (Se peed (Sb)	Starting idle switching	. •	Torque- travel	Control rod
rev/min 1	cm³/1000 strokes	revimin 4a 3	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min 8	travel mm
900	165,0-168,0 (162,0-171,0		9	-	100	19,5-21,0	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps (1) WPP 001/4 MAN 17,4 b 2 and Governors 1. Edition

PE 10 P 120 A 520/4 LS 850

RQV 250-1150 PA 645

supersedes companMAN

1-8-7-6-3-5-2-10-9-4 0-27-72-99-144-171-216-243-288-315° -0,5° (+0,75°) Values apply to

engine: D 2540 MLE 405 kW (551

engine nozzle-and-holder assemblies 1 688 901 019 and engine fuel-injection tubing 1 680 750 067 Al text specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

405 kW (551 PS) 0 401 849 165

A. Fuel Injection Pump Settings

Port closing at prestroke

3,0-3,1 (2,95-3,15) mm (from BDC) Zy1. 10

Rotational speed rev/min	Control rod travel	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	11,2+0,1	18,6-18,9	0,5(0,8)	·		
250	6,1-6,3	1,4-2,0	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed			Intermediate	rated sp	eed		Lower rated	speed			Sliding sleeve travel		
deflection of control	rev/min Control rod travel	mm \	9	Degree of deflection of control		Control travel	rod	Degree of deflection of control		Contro travel		Shortys	1	
1 1	mm 2	rev/min (29)	lever	rev/min	mm	(1)	lever	rev/min	mm	(3)	rev/min	mm	
	-			•	3	6		 '	8	9		10	11	
max.	1200	15,2-17,	8_	-	-	-		ca. 11		min.			0,6-0,8	
Ca. 63		1190-120 1255-128 0 - 1,0	5						250 380-4		-6,3 2,0		4,8-4,9 5,9-6,2 7,9	
! [<u> </u>							3						

Torque control travel a =

ШШ

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ten		Rotational-speed (2b) limitation intermediate speed	Fuel deli- high idle s	rery characteristics (Se poed (So)	Starting Idle switching	, •	Torque- travel	control (5)
rev/min 1	cm ³ /1000 strokes 2	rev/min 49 3	rev/min 4	cm ³ /1000 strokes 5	rev/min	cm²/1000 strokes 7	rev/min 8	travel
1150	186,0-189,0 (183,0-192,0		1	•	100	270,0-290,0	•	•

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 MB 12,8 n 2 1. Edition

PE 8 P 100 A 320 LS 819

RQV 350-1250 PA 378 R

sup~raedes

companDaimler-Benz engine: OM 402 188 kW (256 PS)

Komb.-Nr. 0 401 848 073

1 - 8 - 7 - 2 - 6 - 3 - 5 - 4 je 45 ° $^{+}$ 0,5 ° ($^{+}$ 0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1230	10,3+0,1	10,0-10,2	0,3(0,6)			
350	7,5-7,7	2,0- 2,4	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

Testoil-ISO 4113

Upper rated	speed			Intermediate	rated sp	eed		Lower rated	speed			Sliding sleeve travel	
Degree of deflection of control	rev/min Control	Control rod	(3)	Dagree of deflection		Control rod travel		Degree of deflection			. 0		
lever	rod travel	mm rev/min	(29)	of control lever	rev/min	mm (4)	lever	rev/min	mm	(3)	rev/min	mm
1	2	3	_	4	5	6		7	8	9		10	11
max.	1250	15,2-17	,8	•	-	-		ca. 18	100 350	min. 9			0,9-1,1 3,6-3,9
ca. 65	9,3	1280-12	90						550	[7,5-7]	, /		5,3-5,6
	4,0 1500	1360-13 0 - 1,	90					400-600				250	8,3
						 		③					

Torque control travel a

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-roo Test oil ten		Rotational-speed 20 limitation intermediate speed	Fuel delin high idle s	rery characteristics(Se) poed (Se)	Starting Idle switchir		Torque- travel	control (5) Control rod
rev/min	cm³/1000 strokes	rev/min 40	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	9
1230	100,0-102,0 (98,0-104,0		1230 **	73,0-75,0 (71,0-77,0)	100	110,0-130,0	•	-

Checking values in brackets

1 mm less control rod travel than col. 2

Adjusted at the inner lever of the reduced-delivery stop.

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4MB 12,8 n 1 1. Edition

En

PE 8 P 100 A 320 LS 819- 1

RQV 350-1250 PA 378-2

1 - 8 - 7 - 2 - 6 - 3 - 5 - 4 je $45 \circ ^{+} 0,5 \circ (^{+} 0,75 \circ)$

supersedes
Daimler-Benz
company:
engine: OM 402
188 kW (256 PS)
Komb.-Nr.
0 401 848 081

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	EOKe (3	<u>.45-3.55)</u>	mm (nom suc)			
Rotational speed		Fuel delivery	Difference cm ³ /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rey/min	mne	cm ³ /100 strokes	100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1230	10,3+0,1	10,0-10,2	0,3(0,6)			
350	7,5-7,7	2,1-2,5	0,3(0,5)			
	İ	İ		1		
l	ļ		1	1	1	1

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Testoil-ISO 4113

Upper rated s	peed		Intermediate	rated sp	eed	Lower rated	speed	•	Slidina s	leave travel
deflection	Control rod travel	Control rod says and	deflection of control	røv/min 5	Control rod travel mm 4	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 3	rev/min	mm 11
max.	1250	15,2-17,8	-	•	-	ca.18		min. 9,2		0,9-1,1
ca. 65	9,3	1280-1290					350	7,5-7,7	930	3,6-3,8 5,3-5,6
	4,0 1500	1360-1390 0 - 1,0				400-600			1250	8,3
						3		!		

Torque control travel a =

mr

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load di Control-roi Test oil ten	1 8t X)	Rotational-speed (2b) limitation intermediate speed		rery characteristics (5a) psed (3b)	Starting Idle switching	. •	Torque- travel	control (5) Control rod
rev/min	cm³/1000 strokes	rev/min 4a	rev/mir.	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	travel mm
1230	100,0-102,0 (98,0-104,0)	1280-1290 *	1230	73,0-75,0 (71,0-77,0) **	100	130,0-150,0	,	•

Checking values in brackets

* 1 mm less control rod travel than col. 2

Adjusted at the inner lever of the reduced-delivery stop.

2.83

BOSCH

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SCA 11,0 r

4. Edition

PE 6 P 110 A 720 RS 3040,

RQV 250-1100 PA 379 R

supersede#1.80 company:Scania

PE 6 P 110 A 720 RS 3041,

EP/RSV 350-1100 P 1/310 R

engine: DS 11 206 kW (280 PS)

Variations in output -sida 3!

All test specifications are valid for Boach Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

3,30-3,40
Port closing at prestroke (3,25-3,45)

mm (from BDC)

RW 10.5

· Off and a mile at the ar	(3	,23-3,45/			KN 10,5	
Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery 2040 + RQV cm ⁻ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery 3041 + RSV cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	13,0+0,	15,5 - 15,7	0,4(0,8)	13,0	15,7 - 15,9	3,3 ± 0,1 **
600	13,0+0,	15,5 - 16,0		13,0	16,1 - 16,5	(max. 7 0-3,5)
225	4,0-4,2	0,7 - 1,1	0,2(0,4)	350 3,7-3,9	0,7 - 1,1	

Adjust the fuel delivery from each outlet according to the values in [

** In the case of greater dispersion alter the delivery-valve spring pre-tension

B. Governor Settings

RQV ... 379 R

Upper rated :	speed		Intermediate	rated sp	eed	Lower rated	speed	•	Slidina s	leeve travel
Degree of deflection	rev/min Control	Control rod travel	deflection		Control rod travel	Degree of deflection		Control rod travel		0
of control lever	rod travel	rev/min 2a	of control lever	rev/min	mm ④	of control	revisia	mm 3	rev/min	mm 11
-	2	3	<u> </u>	ļ	 	l'		-	10	
max.	1100 1400	15,2 - 17,8 0 - 1,0		-	-	ca. 10	100 225 310-	5,5 4,0-4,2 370 = 2,0	200 500 800 1100	1,0-1,2 3,8-4,1 5,4-5.6 8,0
ca. 61		1140-1150 1250-1280				③				

Torque control travel a =

ШÜ

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-ros Test oil ten		Rotational-speed (20) limitation intermediate speed	Fuel delin high idle s	rery characteristics (56 peed (50)	Starting Idle switching	• , •	Torque- travei	control 5
rev/min	cm³/1000 strokes .	rev/min 44	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	mm 9
LDA 1100	0,7 bar 155,0-157,0 (153,0-159,0)	1140-1150*	LDA 600 LDA 500	0,7 bar 156,5-159,5 (154,0-162,0) 0 bar 128,0-132,0 (126,0-134,0)	100 225 Dispe	240-290 0- 13 rsionmax. 2 (- 4)**	•

Checking values in brackets

*1 mm less control rod travel than col. 2

B. Governor Settings

				•				EP/RSV .	310	R _
1 Uppe	er rated speed		Interme	diate rated	speed	(A)	Lowe	rated speed		rque control
Degree of deflection of control lever 1	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control- lever deflection in degrees 7	rev/min 8	Control rod travel mm		Control rod travel mm
ca. 66	1100 1150 1200	16,0 11,7	with	out au	xilia	ca. 30 y sprin	350 100	6.0 min. 19		max.
28	1140-1 1220-1 1290	150 = 12 255 = 4,0 0,3 - 1,7		auxil	iary :	pring	350 400 550	5,7-6,3 3,2-4,7 0-1		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	speed limitat.			uel delivery naracteristics	Starting fuel delivery 5 4a Idle st			e stop
rev/min	cm ³ /1000 strokes	Note: changed to) rev/min 3	rev/min	cm ³ /1000 strokes 5	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1100	155,0 - 157,0 (152,0 - 160,0)	1140~1150*	600		350 isper:	20,5-21,0 9-13 ion max. 2 5,0 -5,5 m sion max. 4	n RW**	·

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

Test at n = rev/min decreasing pressure – in bar gauge pressure 500

Pump/governor	Setting	Measurement	diminution Control rod travel-
	Gauge pressure = bar	Gauge pressure = bar	XXXXXXXXXXXX
PE 6 P RS 3040 + RQV PA 379 R	0,38	0,70 0 0,28	12,8 - 12,9 13,0 - 13,1 11,7 - 11,8 12,1 - 12,3

Notes:

(1) when n =

gauge pressure =

bar (= maximum full-load control rod travel)

En

Increased or reduced outputs of the types listed on page 1-2:

Output variation	Output %	Fuel deliv	ery in eed (mi	cm ³ /1000 n ⁻¹) 1)		Adjustment of control-rod position from 100%
		1100	900	750	600	setting (mm)
P	120	205	208	212	214	+ 2,6
ប	115	191	196	198	200	+ 1,9
R	113	186	191	192	195	+ 1,7
M	110	180	185	185	188	+ 1,3
٧	108	175	179	179	183	+ 1,0
¥	105	170	173	172	177	+ 0,7
T	193	166	167	166	171	+ 0,4
S	98	154	156	156	158	- 0,2
X	95	146	149	149	150	- 0,5
Q	93	141	145	145	146	- 0,8
Z	. 90	134	138	139	140	- 1,1
0	88	131	134	136	137	- 1,3
N	85	124	126	130	131	- 1,6
M	80	114	115	119	121	- 2,1
L	75	105	106	108	111	- 2,6
K	70	98	98	98	99	- 3,0
J	65	89	90	90	90	- 3,4
I	60	86	84	83	80	- 3,8

¹⁾ Tolerances with fuel quantity are \pm 1 cm³ at setting speed.

With subsequent orders from KH/ALP only the standard setting according to page 1-2 will be delivered. If required, the above mentioned variations are to be carried out through your local BOSCH Service Station.

The delivery amounts given in the table have been compiled from Saab-Scania documentation upon their request.

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 ALO 13,8 a
1. Edition

En

PES 6 P 120 A 320 RS 410 RQV 400-1050 PA 496 K
Komb.-Nr. O 402 046 201

supersedes

company:

Allis Chalmers

engine: 613.8 I

355 PS

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,8-2,9
Port closing at prestroke (2,75-2,95) mm (from BD

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1050	11,7+0,1	23,3-23,5	0,4			
400	6,0-6,2	2,5- 3,1	0,4			

Adjust the first delivery from each outlet according to the values in

B. Governor Settings

Upper rated	speed			Intermediate	rated ap	eed		Lower rated	speed			Stiding steeve travel	
Degree of deflection of control lever	revimun Control rod travel mm	Control rod travel rom reviews 3	9	Degree of deflection of control lever	rev/mas	Control travel	rod (1)	Degree of deflection of control lever 7	rev/man	Control roc travel	s 	revinen 10	① -
ca.61 ca.59	10,7	15,2-17 1090-11 1205-12	00	-	-	•		ca.17,	400 465-	min.7 5,5-5, 525=2,	7	•	-
	1270							③	000	max.1,	U		

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-roc Test oil terr				9	1	tual delivery (6) ng point	Torque traval	Control (5)
rgw/mat	cilli ³ /1000 strokes	Ostrohes routes (4)		cm ³ /1000 strokes	revitaus cas/1000 strokes		-	
1	2	3	4	5	•	7	8	•
1050	233,0-235,0	1090-1100*	800	212,0-216,0	100	140,0-180,0	1050	11,7
							800	11,2+0,

Chucking values in brachets

* 1 mm less control rod travel than col. 2

3.83

Testoil-ISO 4113

Test Specifications 0 Fuel Injection Pumps 1

and Governors

1. Edition

PE 6 P 100/320 RS 169

RQV 200-1200 PA 122/2 R RQV 250-1200 PA 235/2 R companyolvo TD 70

WWP 001/4 VOL 7,0 a 2

Festoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	troke (2,8-2,9 2.75-2.95)	mm (from BDC))		
Rotational speed		Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	cm ³ / 100 strokes	mm .	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1000	12,0	10,4-11,1	0,5			2,5-0,1 max. 2,2-2,9)
600 600 600 200	9,0 12,0 15,0 9,0	3,3-4,3 9,8-11,2 14,9-16,5 2,3-3,3				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

.. PA 122/2 R

Upper rated	speed		Intermediate	rated ap	eed	Lower rated	speed		Stiding sleeve travel		
deflection	Control	Control rod travel	Degree of deflection		Control rod travel	Degree of deflection		Control rout travel		0	
of control	rod travel	rev/mun (2a)	of control lever	rev/min	mm (1)	of control lever	rev/min	mm (3) reviews	~~	
1	2	3	4	5	6	7	8	9	10	11	
ca. 68	1290 1550	15,0-18,0 0	-	-	-	ca. 23	300	8,6-10,0 6,4-8,8	1299	8,3	
ca. 66	1200 1300 1400							2,9-5,4 0,7-2,7 0			
	1500	0				③					

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Combol-ro Test oil te		Rotational-speed (20) imitation characters speed	Furt dain high idle t	rery characteristics (5e)	Starting lidle switchis	. •	Torque-control (5 travel	
revinia		routmin (4)	rovinia	cm³/1000 strokes	rev/res	cm-V1000 strokes	~~~~	Control rod travel men
LDA 700	0,7 bar 82,0-84,0 (81,0-85,0)	1230-1240*	LDA 700	0 bar 63,5-65,5 (62,5-66,5)	100 200	150,0-180,0 11,0-15,0 sion max. 2,5	•	•

Chucking values in brackets

1 mm less control rod travel then cot. 2

Upper	rated :	speed			Intermediate	rated spe	ed	Lower rated	speed	ſ	Sliding sl	eeve travel
Degre deflec of con lever	nod	rev/min Control rod travel mm	Control rod travel mm rev/min 3	(9)	Degree of deflection of control lever	rev/min	Control rod travel mm 4	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 3	rev/min 10	1) mm 11
ca.	50	1290 1560	15,0-18 0	,4	-	-	•	ca. 13	200			8,3
ca.	45	1200 1300 1400 1510	15,0-18 8,1-13 0 - 7 0					39	300 380 510	3,8-6,8 0 -4,0 0		

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load of Control-ro Test oil ter		Rotational-speed (2b) limitation intermediate speed	Fuel deliv character high idle s	rstics	Starting fuel delivery 6 Idle switching point		Torque- travel	control 5 Control rod
rev/min	cm ³ /1000 strokes	revimin 4a)	rev/min 4	cm ³ /1000 strokes 5	.rev:min	cm:/1000 strokes 7	rev/mun 8	mm 9
LDA 700	0,7 bar 82,0-84,0 (81,0-85,0)	1230-1240*	LDA 700	0 bar 59,5-62,5 (58,5-63,5)	100 200	15,0-180,0 11,0-15,0	-	·
					ispei	sion max. 2,5		

Checking values in brackets

* 1 inm less control rod travel than co: 2

Testoil-ISO 4113

D. Adjustment Test for Manifold Pressure Compensator

Test at n =

rev/min decreasing pressure ~ in bar gauge pressure

Pumpigovernor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = ber	Gauge pressure = bar	mm
PE 6 P RS 169 + RQV PA 122/2R bzw. + RQV PA 235/2 R		0,07-0,11	

En

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 VUL 7.0 i 3. Edition

PE6P110A320RS413 Y

ROV 250-1200 PA 499

Komb.-Nr. 0 401 846 439

supersodes 12.82 company: Volvo TD 76 F 180 kW (245 PS)

All test specifications are valid for Boach Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

3,0-3,1 (2,95-3,15)

mm (from BOC) = RW 9,0 - 12.0 mm

Rotational speed rev/min 1		Fuel delivery cm ³ /100 strokes 3	Oifference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm
700	12,4+0,1	12,9-13,1	0,4(0,8)			2,5 ±0,1
250	4,9-5,1	1,6- 2,0	0,3(0,6)			(max. 2,2-2,9)

B. Governor Settings

Upper rated s	peed		la la					Lower rated speed				Sliding sleeve travel		
	rev/min Control	Control rod		egree of effection		Contro	por lo	Degree of deflection	Ì	Control ro	d			
of control lever	rod trave	THE THE PARTY (t control	revAmin	mm	①	of control lever	rev/min	mm	3	rev/min	mm	
1	2	3	4		5	6		7	8	9		10	11	
max.	1200	15,2-17,	8	-	-		-	ca. 9		min.6			0,6-0,8	
ca.62	11,4	1240-125				l			256	14,2-5	,1		3,1-3,5 5,6-5,9	
Ca.02	4,0	1370-149										1200	7,9	
	1500	0 - 1,0				Ì		309-410	ļ					
								(3)						

Torque control travel a

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load of Control-ro Test of ter	Iddivery id stop inp. 40°C (104°F) 2	Rotational speed (20) iumitation speed	Fuel delin high idle s	ery cherecterusca (Se) peed (Se)	Starting idle switchir	• . •	Torque-control (5 travel Control ro		
rev/min	c/h³/1000 strokes .	rev/min @	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	travel mm	
1	2	3	4	5	6	7	•	9	
LDA	9,7 bar	1240-1250*	LDA	0 bar	190	160,0-200,0	-	-	
700	129,0-131,0		700	78,0-81,0		= R4 20,0-			
	(126,0-134,0			(75,0-84,0)		21,0 mm			
1									
] .						

Chucking values in brackets

1 mm less control rod travel than cot. 2

Test at n =

500

rev/min decreasing pressure – in bar gauge pressure

VOL 7,0 i

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	diminution Control rod travel- difference mm (1)
413 Y + 499	0,7	0,51 0,30 0	12,4 - 12,5 12,0 - 12,1 10,7 - 10,9 9,8 - 9,9

Notes

(1) when n =

dande blesznie Len/unu aug

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 KHD 19,0 n

1. Edition

RQV 750 AB 996 L PE 12 A 95 D 610 LS 2453 1 - 4 - 9 - 8 - 5 - 2 - 11 - 10 - 3 - 6 - 7 - 12 $0 - 15 - 60 - 75 - 120 - 135 - 180 - 195 - 240 - 255 - 300 - 315^{0} + 0,5^{0}$ $(+0,75^{0})$ supersedes_

company: KHD

engine: F 12 L 413 F

Komb.-Nr. 0 400 640 094

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings 2,0 - 2,1

Port closing at pres	troke	(1.95-2.15)	mm (from 3DC)			
Rotational speed	Control rod travel	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel	Fuel delivery cm ² /100 strokes	Spring pre-tensioning (torque-control valve)
1	2	3	4	2	3	6
710	9,5-9,6	8,0 - 8,2	0,3(0,6)			
300	5,6-5,7	0,4 - 0,9	0,3(0,5)			
	}	1		ł		<u> </u>

Adjust the fuel delivery from each outlet according to the values in (

B. Governor Settings

Testoil-ISO 4113

Upper rated s	peed		Intermedials	on beten	eed	Lower rated	speed	•	Slidina s	leave travel
		Control rod travel	Degree of deflection		Control rad	Degree of deflection		Control rod travel		. ①
	rod trave	mm rev/min (2s	of control lever	revimia	mm (4)	of control lever	rev/m/.n	mm (3)	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 27	9,0 4,0	750-755 770-785	-	-	-	-	-	-	-	-
						9				

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load di Control-roi Test oil ten		Rotational-speed (20) Imitation intermediate speed	Fuel delivery characteristics (Se high ide speed (Se)		Starting Idle switchir	. •	Torque- travel	control (5) Control rod
rewinan	cm³/1000 strokes .	rev/min 49	rev <i>i</i> min	cm ³ /1000 strokes	rev/min	cm¥1000 strokes	rev/min 8	travel mm
710	79,5-81,5 (77,5-83,5)	750~755*	-	•	100	120,0-130,0 = 13,8-14,5 mm RW	- -	-

Chucking values in brackets

0,5

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 KHD 19,0 m

1. Edition

PE 12 A 95 D 610 LS 2453 Komb.-Nr. 0 400 640 108

ROV 300-900 AB 1090 L

supersedes

company: KHD

F 12 L 413 FW

1 - 4 - 9 - 8 - 5 - 2 - 11 - 10 - 3 - 6 - 7 - 12 $0 - 15 - 60 - 75 - 120 - 135 - 180 - 195 - 240 - 255 - 300 - 315^{0} + 0,5^{0}(+0,75^{0})$

177 kW (240 PS) 1800 min

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

Testoil-ISO 4113

(1,95-2,15)

mm (from BDC)

Rotational speed	Control rad	Fuel delivery		Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rgv/min 1	mm 2	cm ³ /1 0C strokes 3	cm²/ 100 strokes 4	mm 2	cm ³ /100 strokes 3	mm 6
900	8,9-9,0	7,2 - 7,4	0,35(0,6]
300	5,9-6,1	1,4 - 2,0	0,35(0,5	5)		
]		
	<u> </u>		<u> </u>		<u></u>	<u> </u>

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

Upper rated s	peed			Intermedials	rated ap	beed		Lower rated	speed	•	Stiding s	levert evec
D-0-0-	rev/man Control	Control rod	•	Degree of deflection		Contro		Degree of deflection		Control rod		, ①
of control	rod travel		(a)	of control lever	rev/min	mm.		of control lever	rev/min	mm (3	(av/min	t e
1	2	3		4	5	6		7	8	9	10	111
max.	900	15,2-	17,8	-	-		-	ca. 24	100	min.7,	5 250	0,5-0,7
	7.0	000	050						300	5,9-6,	1 470	4,0-5,2
ca. 59	7,9	940-1 990-1	-			1		•	340-	400 = 2,	680	6,2-6,5
	1100								ļ		900	8,2
								(3)				

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-rod Test oil terr		Rotational-speed (20) limitation stammediate speed	(3)		Starting lidle switching		Torque-	control (5) Control ro
rev/min	. •	rev/min 4			rev/min	cm ² /1000 strokes	rev/min	travel mm
1	2	3	4	3	•		-	
900	71,5-73,5 (69,5-75,5)	940-950*	750	80,5-83,5 (78,0-86,0)	100	19,0-21,0 mm RW	900 400	8,9+0 9,6+0
			850	72,5-75,5 (70,0-78,0)			750 850	9,2+0 9,0+0
				(70,0 70,0)		ļ		
	ļ							

Chucking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps 1 WPP 001/4 MB 11,0 m and Governors

2. Edition

PE 6 P 110 A 320 LS 3814

ROV 350-1150 PA 378

81 esperaegue companyDaimler Benz engine: 011 421 159 kW (216 PS)

6 - 3 - 5 - 2 - 4 - 1 0 -45 -120-165-240-285 °±0,5°(±0,75°)

Komb.-Nr. 0 401 846 741

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings (3,95-4,15)

Port closing at pres	troke	4,00-4,10	mm (from BDC)	W 9,0-1	2,0 mm	
Rotational speed	Control rod travel	Fuel delivery	Difference cm ³ /	Cantrol rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min 1	mm 2	cm ³ /100 strokes 3	100 strokes 4	mm 2	cm³/100 strokes 3	mm 6
1130	12,7+0,1	13,5-13,7	0,4(0,8)			
350	8,2-8,4	1,3 - 1,9	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed		intermediate	rated sp	000	Lower rated	speed	•	Sliding s	leeve travel
	1	Control rod travel	Degree of deflection		Control rad travel	Degree of deflection		Control rod travel		\odot
of control	rod travel	mm rev/mm (2s	of control lever	rev/min	mm (4)	of control	rev/min	mm 3	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1130	15,2-17,8				ca. 14		min.8,5 7,0-7,2	300 670 1500	1,1 3,9-4,1 8,4
ca. 66	12,0 4,0 1400		i			375-485 ③				

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro		Rotational speed 20 Irrutation		rery characteristics (5a) paed (5b)	Starting lidle	fuel delivery 6	Torque-control 5	
Test oil ter	np. 40°C (104°F) (2)	rev/min 49	rev/man	Ŏ.	ewitchir rev/min		rev/min	_
1	2	3	4	5	6	7	8	9
1130	135,0-137,0 (132,5-139,5	1170-1180*)			100	130,0-150,0		

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps 1

and Governors

WPP 001/4 SCA 8,0 i 1

1. Edition

PE 6 P 110 A 720 RS 3034 Z

ROV 200-1200 PA 554

Komb.-Nr. 0 401 846 770

supersedes_

company: Saab Scania

engine: DS8 05

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	itroke (3.25-3.45)	mm (from BDC)			
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min 1	mm 2	cm ³ /100 strokes 3	100 strokes	mm 2	cm ³ /100 strokes 3	mm 6
700	11,8+0,	10,1 - 10,3	0,4(0,8)			25 <u>+</u> 0,1
225	5,3-5,	1,5 - 1,9	0,3(0,5)			(2,2 - 2,9)

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated t	peed		Intermediate	rated sp	eed	Lower rated	speed	•	Stiding s	leeve travel
Degree of deflection	rev/min Control	Control rod travel	deflection	İ	Control rod travel	Degree of deflection		Control rod travel		0
of control lever	rod travel	rev/min 2a 3	of control lever	rev/min	mm (4)	of control lever	rev/min 8	mm 3	rev/min 10	mm 11
max.	1220	15,2-17,8	-	-	-	ca. 16	100	min.7,4	150	0 -1,0
ca. 61	10,8 4,0 1500	1240-1250 1360-1390 0 - 1,0					225 410-4	5,9-6,1 70 = 2,0	500 850 200	5,4-3,9 5,4-5,8 7,9
						③				

Torque control travel a =

mar

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-ros Test oil ten		Rotational-speed (2b) fimitation intermediate speed	Fuel delin high idle s	very cheracteristics(Se peed (Se)	Starting fuel delivery (8) Idle switching point		Torque- travel	Control rod
rev/min		rev/min 49	rev/min	cm ³ /1000 strokes		cm³/1000 strokes	rev/min	travel mm
LDA 700	0,9 bar 101,0-103,0 (99,0-105,0)		LDA 1200 LDA 500	0,9 bar 111,5-114,5 (109,5-117,0) 0 bar 85,0-89,0 (83,0-91,0)	100	190,0-240,0 = 20,0-21,0 mm RW	-	-

Checking values in brackets

2.83

Testoil-ISO 4113

^{*1} mm less control rod travel then col. 2

SCA 8,0 i 1

Test at n =

500

rev/min decreasing pressure ~ in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PE 6 PRS 3034 Z + RQVPA 554	0,90	0 0,21	11,8 - 11,9 10,9 - 11,0 11,7 - 11,8

Notes:

(1) when n =

rev/min and gauge pressure =

 $^{\odot}$

Test Specifications Distributor-type Fuel-injection Pumps

46

WPP 001/4 VOL 3,6k 1. Edition

<u>in</u>

VE 4/10 F 1900 L 109

0 460 404 029

superseder Volvo-Penta company 8199

engine: 70 PS-B-Leistung

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

0,2

see VDT-W-460/...

716 SUONE 36 (III)				Charge air press.	Difference
1. Settings	Rot. speed rev/min	not speed			Difference in delivery cm ³
1.1 Timing device travel	1500	4,4-4,8	mm		
1.2 Supply pump pressure	1500	6,9-7,5	bar (kgf/cm²)		İ
1.3 Full-load delivery without charge-air pressure Full-load delivery with	1500	43,0-44,0	cm ³ /1000 strokes		3,0
charge-air pressure 1.4 Idle speed regulation	300	20,5-24,5	cm³/1000 strokes		3,0
1.5 Start	100ء	min. 60,0	cm ³ /1000 strokes		
1.6 Full-load speed regulation	2100	24,5-30,5	cm ³ /1000 strokes		
1.7 Load-dependent start of delivery					

c. 1631 3pa	Jirca Gotto	checking values in brackets (1900
2.1 Timing device	n = rev/min	1,8-2,6 (1,5-2,9)	1500 (3,9 - 5,3)	5,1-5,9	(4,8-6,2)
2.2 Supply pump	n = rev/min bar (kgt/cm²)	600 3,7 - 4,3			1900 - 8,9
Overflow delivery	n = rev/min cm ³ /10 s	600 55 - 138 (40 - 153))	55-138	1900 (40-153)
2.3 Fuel deliveries	_L			3. Dimen	tor assembly
Speed control lever	Ret speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm²)	Designation	and adjustment mm
End stop	2350 2300 2100 1900 1500 800 600	max. 4,0 1,0-9,0 (1,0-9,0) (23.5-31,5) 40,0-43,0 (39,2-43,8) (41,2-45,8) 45,0-48,0 (44,2-48,8) 39,5-43,5 (38,5-44,5)		K KF MS SVS	- 5,7-6,0 1,4-1,6 max. 4,
switch-off	1900	0		A B	
ide stop End stop	300 400 450 350 450	(18,5-26,5) 0,5-6,5 max. 2,5 min. 5 0 max. 48		Observations	
2.4 Salenoid	mex. cut-in volts				

BOSCH

leschaftsbereich KH. Kundendienst. KIz-Ausrüstung.
1988 by Robert Spech GmbH, Postfach SQ, 0-7000 Stuttgart 1. Printed in the Federal Republic of Germany 1, 83

Test Specifications Distributor-type Fuel-injection Pumps

VE 6/10 F 2000 L 115

0 460 406 015

WPP 001/4 VWW 2,4 8 1. Edition

supersedes

VWW company:

engine:

50 Hz. Aggr.

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

see VDT-W-460/...

Testoil-ISO 4113

Pre-stroke setting	mm		see VDT-W-460/	\$66 VD1-W-46U/		
1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³		
1.1 Timing device travel	1200	2,2 - 2,6 mm				
1.2 Supply pump pressure	1200	4,4 - 5,0 bar((kgt/cm²)			
1.3 Full-load delivery without charge-air pressure	1200	70,5 -51,5	/1000 strokes	2,5 (3,0)		
Full-load delivery with charge-air pressure	-		/1000 strokes			
1.4 Idle speed regulation	350	6,0 -10,0 cm ³ /	/1000 strokes	2,5 (3,0)		
1.5 Start	<i>=</i> 100	min. 35,0 cm ³ /	/1000 strokes			
1.6 Full-load speed regulation	2070	8,0 -14,0 cm ³ /	/1000 strokes			
1.7 Load-dependent start of delivery	- .	-				

2. Test Spe	cincarions	checking values in brackets ()			
, 1 Timing device	n = rev/min	900	1200 (1,7-3,		1950 5,0 (3,9-5,3)
	mm		(1,/-3,	1) 4,2	
2 Supply pump	n = rev/min	600			1950
	bar (kgf/cm²)	2,8-3,4		6,4-	7,0
Overflow delivery	n = rev/min	600			1950
	cm ³ /10 s	55-138 (40-153)		55-13	38 (40-153)
2.3 Fuel deliveries				3. Dimen	SIONS for assembly and adjustment
Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm²)	Designation	mm
End stop	2150	max. 1,5		к	3,2-3,4
	2070	(7,0-15,0)		KF	6,3-6,6
	2050	13,0-19,0 (12,0-20,0)		MS	1,4-1,6
	1950	22,5-24,9 (21,4-26,0)		svs	2,7
	1200	(28,7-33,3)			
	600	23,0-26,0 (21,5-27,5)			·
switch-off				^	
elect.	400	0		8	
idle stop	430	max. 1,5		Observations	
	350	(4,0-12,0)			
End stop	350	min. 30			
	450	max. 30			
2.4 Solenoid	max. cut-in voltag	mated voltage 12V			

Test Specifications Distributor-type Fuel-injection Pumps

46

WPP 001/4 VWW 2,4 g1 1. Edition

En

VE 6/10 F 1800 L 115-1 O 460 406 016

Festoil-ISO 4113

supersedes _

company: VWW

engine:

50 Hz. Aggr.

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting - mm

see VDT-W-460/...

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1.1 Timing device travel	1200	2,3- 2,7	mm		
1.2 Supply pump pressure	1200	4,4- 5,0	bar (kgf/cm²)		
1.3 Full-load delivery without charge-air pressure	1200	30,5-31,5	cm ³ /1000 strokes		2,5 (3,0)
Full-load delivery with charge-air pressure	-	-	cm³/1000 strakes		
1.4 Idle speed regulation	350	5,0-11,0	cm ³ /1000 strokes		2,5 (3,0)
1.5 Start	100	min. 35,0	cm³/1000 strokes		
1.6 Full-load speed regulation	1830	17,0-23,0	cm ³ /1000 strokes		
1.7 Load-dependent start of delivery	-	-			

2. Test Spe	2. Test Specifications checking values in brackets ()							
2.1 Timing device.	n = rev/min	900	1200	1750				
	mm	1,1-1,9 (0,8-2,2)	(1,8-3,2)	4,0-4,8 (3,7-5,1)				
2.2 Supply pump	n = rev/min	600		1750				
	bar (kgf/cm²)	2,7-3,3		5,8-6,4				
Overflow delivery	n = rev/min	600		1750				
	cm ³ /10 s	55-138 (40-153)		55-138 (40-153)				
		<u></u>						

	cm ³ /10 s	55-138 ((40-153)		55-1	38 (40-153)
2.3 Fuel deliveries					3. Dimer	ISIONS for assembly and adjustment
Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes		Charge-air press. bar (kgf/cm²)	Designation	mm adostriant
End stop	1950	max. 1,5			K	2221
	1880	min. 5,0				3,2-3,4
	1890		(16,0-24,0)		KF	6,3-6,6
	ļ	05 0 07 7	• • •		MS	1,4-1,6
	1750	25,3-2/,/	(24,2-28,8)		svs	2,7
	1200		(28,7-33,3)			,-
	600	23,0-26,0	(21,5-27,5)			
switch-off					A	
elect.	400	0			8	
idle stop	430	max. 1,5	·		Observations	
	350		(4,0-12,0)			
End stop	350	min. 30				
١	450	max. 30				
2.4 Salenaid	max. cut-in volts	mated val		*		

Testoil-ISO 4113

WPP 001/4 MB 14,5 h 3
1. Edition

<u>En</u>

PE 8 P 120 A 320 LS 3807

RQ 750 PA 374 R

1 - 8 - 7 - 2 - 6 - 3 - 5 - 4 je $45^{\circ} - 0.5^{\circ} (-0.75^{\circ})$

supersedes =

company: Daimler-Benz

engina:

OM 422 A

196 kW (266 PS)

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067.

All test apecifications are valid for Bosch Fuel Injection Pump Test Benches and Testers,

A. Fuel Injection Pump Settings

Port closing at prestroke (3.95-4.15) mm (from BDCZy). 8

		(3,33-4,13)				
Rotational speed rev/min 1	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	11,5+0,	17,8 - 18,0	0,5 (0,9	<u>. </u>		
300	5,0-5,2	1,2 - 1,8	0,8 (1,2)		
İ					<u> </u>	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking PRG che		Full-load s Setting po		gulation Test spec Central	cifications (4)	idle spec Setting p	•		cifications 5	Torque o	Control rod
rev/min	travel	rev/min 3	nd tradi mm 4	red travel	rev/min 6	rev/min 7		rev/min 9	travel mm 10	rev/min 11	travel mm 12
-	-	-	-	10,5 4,0	l	•	•	•	-	-	-

Torque-control travel on flyweight assembly dimension a *

mm

Speed regulation: At

ictinos asel mm f levari bor

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop 3a	Fuel deliv	Fuel delivery characteristics 3b		Starting fuel delivery 6 Idle speed Centry red touch		
rev/min 1	cm ³ /-1000 strokes	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	red travel cm ³ /1000 strokes:/ mm 7		
700	178,0-180,0 (175,0-183,0)	-	•	•	100	200,0-210,0		

Checking values in brackets

10.82

BOSCH

Test Specifications Fuel Injection Pumps 1

and Governors

WPP 001/4 VOL 12,0 f 3

1. Edition

PE 6 P 120 A 320 RS 3071 Y RQV 250-1025 PA 371

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067.

anbeusedes

companWolvo engine: TD 120 G

213 kW (290 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings 2.6-2.7

Port closing at pres	itroke	(2.55-2.75)	mm (from BDC)			
Rotational speed	Control rod travel	Fuel delivery	Difference cm ³ /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min 1	mm 2	cm ³ /100 strokes 3	100 strokes	നന 2	cm ³ /100 stroke2 3	mm 6
700	10,2+0,1	17,5-17,8	0,6(0,9)			
250	5,7-5,9	2,2-2,6	0,3(0,6)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated a	peed		Intermediate	rated sp	eed	Lower rated	speed	•	Sliding s	leeve travel
deflection	rev/min Control	Control rod travel	Degree of deflection		Control rod travel	Degree of deflection		Control rod travel		. ①
	rod trave	rev/min 2a	of control lever	rev/min	mm 4	of control lever	rev/min	mm 3	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1100	15,2-17,8	-	-	-	ca.12		min.7,2 5,7-5,9	D .	0,7-0,9 2,7-3,0
ca. 42	9,2 4,0 1300	1065-1075 1145-1175 0-1,0					1	90=2,0		4,7 - 5,0 6,9
						②			<u> </u>	

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load di Control-roi Test oil ten	d stop	Rotational-speed 20 limitation intermediate speed	Fuel delivingh idle s	rery characteristics (5e poed (50)	Starting Idle switching	. •	Torque-control 5	
rev/min	cm³/1000 strokes	rev/min 49 3	rev/min 4	cm ³ /1 000 strokes 5	rev/min 6	cm ⁻³ /1000 strokes 7	rev/min 8	travel mm
LDA 700	0,75 bar 175,0-178,0 (172,0-181,0)	1065-1075*	LDA 700	0 bar 155,0-159,0 (152,0-162,0)		240,0-280,0 =RW 20,0- 21,0 mm	•	•

Checking values in brackets

* 1 mm less control rod travel then col. 2

Testoil-ISO 4113

Test at n =

500

rev/min decreasing pressure ~ in bar gauge pressure

VOL 12,0 f 3

Pump/governor	Setting	Measurement	diminution Control rod travet- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PE 6 PRS 3071 Y +RQVPA 371	0,29	0,75 0 0,24	9,9-10,0 10,2-10,3 9,2-9,3 9,5-9,7

Notes:

(1) when n =

rev/min and gauge pressure =

Test Specifications Fuel injection Pumps 1 and Governors

WPP 001/4 RVI 9,8 b 1

1. Edition

PE 6 P 120 A 321 RS 438

ROV 275-1200 PA 648

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067.

supersedes. company:RVI engine: MID 062045

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings mm (from BDC)

Port closing at pres Rotational speed	Control rod	(3,45-3,65) Fuel delivery	Difference	Control rod	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm 2	cm³/100 strokss 3	cm ³ / 100 strokes 4	mm 2	cm ³ /100 strokes 3	mm 6
1200	11,2+0,	13,4-13,7	0,5(0,9)			
275	5,3-5,5	0,7-1,3	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

Upper rated s	peed		Intermediate	rated sp	eed	Lower rated	speed	t	Sliding s	leeve travel
Degree of deflection of control	rev/min	Control rod (1) travel mm rev/min (2)	Degree of desection of control lever	rev/min	Control rod travel	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 3	rev/min 10	1) mm 11
max.	1230	15,2-17,8	-	-	-	ca. 11	100 275	min.6,9 5,3-5,5	250 570	0-0,9 4,7-5,0
ca. 65		1240-1250 1335-1365 0-1,0				270-365			880 1200	6,1-6,3 8,3
	į					3				

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ter	d stoo	Rotational-speed (20) fimitation intermediate speed	Fuel delivery characteristics (5a) high ide speed (5b)		Starting Idle switchir		Torque-control (5) travel Control roo	
rev/min		rev/min 49	rev/min	cm ⁹ /1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	travel mm
1200		1240-1250*	-	•	100	180,0-200,0	-	-
	(131,0-140,0)				275	7,0-13,0		

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps 1

WPP 001/4 GUS 21,2 a 2. Edition

and Governors

PE 8 P 130 A 520/4 RS 3085

ROV 350-900 PA 602

 $1 - 2 - 4 - 5 - 6 - 3 - 7 - 8 \text{ je } 45^{\circ} \pm 0.5^{\circ} (\pm 0.75^{\circ})$

supersedel 81 company Guascor engine: E 212

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test

tubing 1 680 750 067.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers.

A. Fuel Injection Pump Settings

Port closing at pres	stroke	3,2 - 3,3 (3 15-3 35)	mm (from BDC)			
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min 1	mm 2	cm³/100 strokes 3	cm³/ 100 strokes 4	mm 2	cm³/100 strokes 3	mm 6
900	8,5-8,6	18,8 - 19,1	0,5(0,9)			
350	4,0-4,2	2,2 - 2,8	0,8(1,2)			
	_					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	speed	· · · · · · · · · · · · · · · · · · ·	Intermediate	rated sp	eed	Lower rated	speed		Sliding s	leeve travel
Degree of deflection	rev/min Control	Control rod travel	Degree of deflection		Control rod travel	Degree of deflection		Control rod travel		. ①
of control lever	rod travel	mm rev/min 2a	of control lever	rev/min	mm 4	of control lever	rev/min	mm ③	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	950 1100	15,2-17,8 0 - 1	-	-	-	ca.10	100 350	min.5,6 4,0-4,2	300 500 700	1,0-1,2 2,8-3,2 4,7-5,1
ca.58	7,5 4,0	940 - 950 965 - 995				355-455 3			900	7,8

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load of Control-ro Test oil ten		Rotational-speed 20 limitation intermediate speed			Starting Idle switchin	. •	Torque-control 5 travel Control re	
rev/min 1	cm³/1000 strokes	rev/min 40 3	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes 7	rev/min 8	travel mm
900	188,0-191,0 185,0-194,0)	940 - 950*	-	-	100	19,5 - 21,0 mm RW	1	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps 2 and Governors

WPP 001/4 MB 14,6 i 3. Edition

PE 8 P 120 A 320 LS 3807

RO 300/1150 PA 511

supersedes 3.82

1-8-7-2-6-3-5-4 je 45° $\stackrel{+}{=}0.5^{\circ}$ ($\stackrel{+}{=}0.75^{\circ}$)

Damiler-Benz OM 422 LA

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067.

276 kW(375 PS)

All test specifications are valid for Boach Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(3.95-4.15)

mm (from BDC) Zv1. 8

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
900 300 1150/600 500	11,6+0, 4,8-5, 11,6+0,1 10,1+0,1	0 1,2-2,0 C, Sp.2 u. 5	0,5(0,9) 0,8(1,2) 0,75(1,2) 0,75			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin	g of slider ick (1)	Full-load s	•	gulation Test spec	cifications (4)				cifications (5)	Torque control			
rev/min 1	Control rod travel mm 2	rev/min 3	Control red travel mm 4	Central red travel mm 5	rev/min 6	rev/min 7	Control red travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod (travel		
600 VH =	19,1-20,8 max. 46°	600	20,0	10,7 4,0 1350	1190-1205 1250-1280 0 - 1,0		4,3	100 300 335-	min.6,0 4,2-4,4 375=2,0	-	<u>-</u>		
		l											

Torque-control travel on flyweight assembly dimension a =

1190-1205 min Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

O°C (104°F)	. •			Starting fuel delivery Idle speed		
3/-1000 strokes	fev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min	red travel cm ³ /1000 strokes:// mm 7	
0,7 bar 189,0-191,0 (186,0-194,0)	-	LDA 600	0,7 bar 182,0-186,0 (179,0-189,0)	100	140,0-160,0	
0,7 bar 185,0-189,0 (182,0-192,0)		LDA 500	0 bar 139,0-141,0 (136,0-144,0)			
(0,7 bar 189,0-191,0 186,0-194,0) 0,7 bar 185,0-189,0	3 0,7 bar - 189,0-191,0 186,0-194,0) 0,7 bar 185,0-189,0	3 4 0,7 bar - LDA 189,0-191,0 186,0-194,0) 0,7 bar LDA 185,0-189,0 500	3 4 5 0,7 bar - LDA 0,7 bar 189,0-191,0 600 182,0-186,0 186,0-194,0) (179,0-189,0) 0,7 bar LDA 0 bar 185,0-189,0 500 139,0-141,0	3 4 5 6 0,7 bar - LDA 0,7 bar 100 189,0-191,0 600 182,0-186,0 (179,0-189,0) 0,7 bar LDA 0 bar 185,0-189,0 500 139,0-141,0	

Checking values in brackets

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

MB 14,6 i

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 8 P LS 3807	0,44		11,1-11,3
+ RQ PA 511		0,70	11,6-11,7
		0	10,1-10,2
		0,34	10,5-10,7
•			

Notes:

(1) when n =

rev/min and gauge pressure =

PE 12 P 120 A 320 LS 3819-2 RQ 300/1050 PA 656

supersedes-

1 - 5 - 9 - 8 - 3 - 4 - 11- 10- 2 - 6 - 7 - 12

company: Daimler-Benz OM 424 LA

0 -15 -60 -75 -120-135-180-195-240-255-300-315° ±0,5° (±0,75° pgine:

441 KW

Values only apply to test nozzle-and-holder

assembly 1 688 901 019 and fuel-injection test

Komb.-Nr. 0 401 840 713

tubing 1 680 750 067.
All thest appeciations are valid for Boach Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

Testoil-ISO 4113

(3.95-4.15)

mm (from BDC)

Rotational speed rev/min t	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes	Control rodi travel mm	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1050	11,8+0,	19,2-19,4	0,5(0,9)			
300	5,0-5,2	1,4-2,0	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin PRG chi	rd (1)	Full-load a Setting po	int	Test spec	cifications (4)	idle spec Setting p	point		cifications (5)	Torque o	(3
rev/min 1	2	rev/min 3	Control red travel rhem 4	Central red travel rmm 5	rev/min 6	rev/min 7	Central red travel rnm 8	rev/min 9	travel mm	rev/min	Control rod	
600	19,1-20,8	600	20,0	10,8 4,0 1300	1095-1110 1165-1195 0-1,0		4,6	300	min.6,0 4,5-4,7 80 = 2,0	1	-	

Speed regulation: At

Torque-control travel
on flyweight assembly dimension a =

1095-1110 min-1

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	Control lever hp. 40°C (104°F)	Control rod stop	Fuel deliv	ery characteristics 3b	Starting fuel delivery Idle speed		
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3_	rev/min 4	cm ³ /-1000 strokes	rev/min 6	cm ³ /1000 strokes;/ mm	
LDA 1050	0,6 bar 192,0-194,0 (189,0-197,0)	·	LDA 500	0 bar 141,0-143,0 (138,0-146,0)	100	170,0-190,0 (166,0-194,0)	

Checking values in brackets

Test at n =

500

rev/min increasing pressure - in bar gauge pressure

MB 21,9 d

Pump/gavernor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PE12PLS3819-2 + RQPA656	0,60	0 0,43 0,38	11,8 - 11,9 10,8 - 10,9 11,4 - 11,5 11,1 - 11,3

Notes:

(1) when n =

rev/min and gauge pressure =

WPP 001/4 FIA 13,8 a 2

2. Edition

PE 6 P 120 A 720 RS 167

RO 225/1100 PA 336 R

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067.

10.80 superŝédes Fiat

company: 8210.12.275

engina: 154,5 kW (210 PS)

Komb.-Nr. 0 401 846 429

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	10,3+0,1	16,3 - 16,6	0,5(0,9)]
225	7,5-7,7	1,7 - 2,3	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

• .	ck Control rod travel	1	int Control	Test spec Central rad traval)	idle spec Setting p	coint Centrel red travel	Test spe	cifications 5 Control rod travel mm		Control rod travel
1	2	3	4	5	6	7	8	9	10	11	12
550	15,6-16,4	550	16,0	9,3	1145-116	225	5,3	100	min.6,8	1100	{
			ļ					225	5,2-5,4	550	10,3-10,5
1300	0 - 1			4,0	1190-122			315-	355 =2,0		·
						<u> </u>					

Torque-control travel on flyweight assembly dimension a =

Speed regulation: At

forther: seel mm ? rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on control lever np. 40°C (104°F)	Control rod stop	Fuel deliv	ery characteristics	36)	Starting for idle spee	Control
rev/min ´	cm ³ /~1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strok es 5		r-v/min 6	nd trail cm ³ /1000 strokes / mm 7
1100	163,0 - 166,0 (160,0 - 169,0)					1.00	19,5-21,0 mm R
						225	5,3

Checking values in brackets

Testoil-(SO 4113

Test Specifications Fuel Injection Pumps 2

and Governors

PE 6 P 12U A 720 RS 167 Z Komb.-Nr. 0 401 846 225

RQV 225/1100 PA 118 R

supersed 81 company:Fiat engine: 221 A 210 kW (286 PS)

FIA 13,8 a 4 2 .Edition

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test

tubing 1 680 750 067.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,0 - 2,1 /1 05 = 2 15\ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel dolivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm
1100	21,40,1	17,0 - 17,3	0,5(0,9)			
225	7,5-7,7	1,7 - 2,3	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin	g of slider ick (1)	Full-load s Setting po		-	cifications (4)	Idle spec	•		cifications (5)	Yorque o		3
rev/min 1	Control rod travel mm	r ev/mi n 3	Control red travel races	Control red travel rmm	rev/min 6	rev/min 7	Central red travel rnm 8	rev/min 9	Control rod travel mm	rev/min 11	Control rod travel mm	
600	15,6-16,4	600	16,0	10,1	1145-1160	225	7,6	100 225	min.9,1 7,5-7,7	1100 550	11, 1-11	-
1350	0 - 1,0			4,0	1190-1220			365-4	05= 2,0			
Torque c	control travel						1	145-1	 		1 mm less cor	ntrol

Torque-control travel on flyweight assembly dimension a =

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	telivery on control lever mp. 40°C (104°F)	Control rod stop 3	Fuel deliv	ery characteristics	Starting f	tuel delivery 6 d Gastra
rev/min	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	red tradi cm ³ /1000 strokes:// mm 7
1100	170,0-173,0 (167,0-176,9)			-	100	19,0-21,0 mm R

Checking values in brackets

Festoil-ISO 4113

Test Specifications Fuel Injection Pumps ② and Governors

40

MPP 001/4 UNI 13,8 a 2. Edition

1__

PE 6 P 120 A 720 RS 167y RQ 225/1100 PA 118 R Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067.

supersedes 3.82

company: UNIC/IVECO

engine: 8210.02.051 Komb.-Nr. 0 401 846 366

All test specifications are valid for Boach Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,0 - 2,1 mm (from 80C)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100 225	10,5+0, 7,5-7,		0,5(0,9) 0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking PRG che		Full-load s Setting po			cifications (4)	idle spec Setting p	_		cifications (5)	Torque d	(3)
rev/min	Control rod travel mm	rev/min 3	Cantrol red travel rnero 4	Cantrol real travel rrvm 5	rev/min 6	rev/min 7	Control red travel mm 8	rev/min 9	Control rod travel mm	rev/min 11	Control rod travel mm
550	15,6-16,4	550	16,0	9,5 4,0 1300	1145-1160 1190-1220 0 - 1,0		6,0	225	min. 7,5 5,9-6,1 80=2,0 mm	550	10,5-10,6 10,5-10,7

Torque-control travel on flyweight assembly dimension a =

m

1145-1160 min Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on control lever np. 40°C (104°F)	Control rad stop 3a	Fuel delive	ary characteristics 36	Starting fuel delivery delivery lide speed		
rev/min	cm³/-1000 strokes	rev/min 3	rev/min 4	cm³/-1000 strokes	rev/min 6	red travel cm ³ /1000 strokes/mm 7	
1100	1 66 0 - 169,0 (163,0 - 172,0)			-	100	19,0-21,0 mm RW	

Checking values in brackets

Test Specifications Fuel Injection Pumps 2 and Governors

MPP 001/4 JEM 16,5 a

1. Edition

PE 8 P 130 A 920/4 RS 301 RO 750 PA 426 R 1-6-2-4-8-3-7-5 je $45^{\circ} \div 0,5^{\circ} (\div 0,75^{\circ})$

supersedes company.Jenbacher Werke

engine: C 160 S

Komb.-Nr. 0 401 848 076

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(2.45-2.65)

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	12,0+0,	1 24,4-24,8	0,5(0,8)			,
300	6,1-6,3	2,1-3,0	0,8(0,7)			- - -

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking PRG che	g of stider ck (\sim $ $	il-load a Itting po	peed reg int		cifications (4)	ldle spec Setting p	•		cifications (5)	Torque d	(3)
rev/min	Control rod travel mm	ren 3		Control red travel rritin 4	Control red travel rom 5	rev/min 6	rev/min 7		rev/min 9	Control rod travel mm	rev/min 11	Control rod travel
•	-		•	•	11,0 4,0 900	750-755 775-785 0 - 1,0	-	•	•	-	-	
Torribor	control travel				L	<u> </u>	L	7	50 - 75	5 min -1	1	1 mm less contro

Torque-control travel on flyweight assembly dimension a =

Sceed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d governor d Test oil ten	elivery on control lever np. 40°C (104°F)	Control rod stop 3a	Fuel delive	ery characteris*\.cs (3t	Starting fi	Starting fuel delivery 6		
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	revimin 4	cm³/~1000 strokes 5	rev/min 6	rel travel cm ³ /1000 strokes:/ mm 7		
700	244,0-248,0 (241,0-251,0)	-	-	-	100	19,5-21,0 mm RW		

Checking values in brackets

Festoil-ISO 4113

Test Specifications Fuel Injection Pumps 2 and Governors

WPP 001/4 FIA 13.8a 8.Edition

PE 6 P120/720 RS 167

RQ 225/1100 PA 118 R

supergede2.81 company Fiat 8210.02

All test specifications are valid for Boach Fuel Injection Pump Test Benches and Teste s

A. Fuel Injection Pump Settings 2,00-2,10 (1.95-2,15) m

mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
11,1+0,1	19,3 - 19,7	0,5(0,8)			
7,5-7,7	1,7 - 2,3	0,8(1,2)			
	nm 2 11,1+0,1		mm cm ³ /100 strokes 2 cm ³ / 100 strokes 4 11.1+0.1 19.3 - 19.7 0.5(0.8)	mm cm ³ /100 strokes 2 11.1+0.1 19.3 - 19.7 0,5(0,8)	mm cm ³ /100 strokes 2 cm ³ / 100 strokes 4 mm cm ³ /100 strokes 3 11.1+0.1 19.3 - 19.7 0.5(0.8)

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin PRG che		Full-load Setting p			pecifications 4 Setting point 1			cifications (5)			
rev/min 1	travel nm 2	rev/min 3	nd trad mm 4	red travel mm 5	rev/min 6	rev/min 7	Control red transi rrem 8	rev/min 9	Control rod travel mm	rev/min	Control rod travel mm
600	15,6-16,4	600	16,0	10,1	1145-1160 1190-1220		7,6	100 225	7,5-7,7	1100 600	11,1-11,2 11,1-11,3
1350	0 - 1							303-	105= 2,0		

Torque-control travel
on flyweight assembly dimension a =

Speed regulation: At

1 mm less control

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d governor o Test oil ter	letivery on control lever mp. 40°C (104°F)	Control rod stop	Fuel deliv	ery characteristics (3b)	Starting fuel delivery title speed Control		
rev/min 1	cm ³ /-1000 strokes 2	rev:min 3	rev/min 4		rev/min	Contra red travel cm ³ /1000 strokes:/ mm	
1100	193,0-197,0 (190,0-200,0)		-		100	19,5-21,0 mmRk	

Checking values in brackets

3.83

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Test Specifications Fuel Injection Pumps 2 and Governors

WPP 001/4 MB 11.4 h 1

1. Edition

PES 6 P 110 A 820 LS 422 Komb.-Nr. 0 402 046 243 RQ 300/950 PA 483-1

supersedes"

company: Daimler-Benz

OM 407

137 kW (186 PS)

All test specifications are valid for Boach Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
950	11,0+0,	10,1 - 10,3	0,4 (0,8)			
300	7,8-8,0	1,1 -1,7	0,4 (0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin PRG che	_	Full-load s Setting po	-	-	cifications (4)	Idle spec	-		cifications (5)	Torque o		3)
rev/min	Control rod travel mm		Central red travel rnm 4	Control red travel rmm	rev/min	rev/min 7	Control red travel mm	rev/min 9	Control rod travel mm	rev/min 11	Control rod Travel)
600	13,0-13,8	600	13,4		995-1010 1015-1045 0 - 1,5	300	7,9	100 300 375-4	min.9,5 7,8-8,0 15 = 2,0	-	-	

Torque-control travel on flyweight assembly dimension a =

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	ielivery on control lever np. 40°C (104°F)	Control rod stop [3a] Fuel delivery characteristics			Starting fi Idle spee	Cambra
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	rai tradi cm³/1000 strokes:/ mm 7
950	101,0-103,0 (98,0-106,0)	•	600	92,0-96,0 (89,0-99,0)	100	130,0-150,0

Checking values in brackets

Test Specifications Fuel Injection Pumps (1A) and Governors

WPP 001/4 PEN 10,0 d 2 1. Edition

PE 6 P 110 A 320 RS 138 Z

Komb.-Nr. 0 401 876 262

RSV 200-1000 P 1/305 R

supersedes =

Volvo-Penta

D 100 B/PP

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,6 - 2,7(2.55-2.75)

mm (from BDG) RW 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	8,4-8,5	8,8-9,0	0,4 (0,8)			
225	5,3-5,5	1,0-1,4	0,3 (0,6)			
	:					

Adjust the fuel delivery from each outlet according to the values in E

B. Governor Settings

1 Uppe	rated speed	rev/min	Interme	diate rated	speed	(4)	Lower	rated speed	(3) 10	rque control
Degree of deflection of control	Control rod travel	Control rod travel mm rev/min				Control- lever deflection	rev/min	Control rod travel mm	rev/min	Control rod travel mm
lever 1	2	3	4	5	6	in degrees 7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 23	225	4,9	-	-
	X =						100 225	min.20,0 5,3-5,5		
ca.54	7,4 4,0	1040-1050 1070-1100					310-370			
23	1230	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 b) Fu	Speed INLIS			uel delivery varacteristics	Starting t	luel delivery 5	4a idle stop	
Test oil to	cm ³ /1000 strokes	Note: changed to) rev/min 3	rev/min	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min	Control rod travel mm
700	88,0-90,0 (85,0-93,0)	1040-1050*	-	-	100	310,0-340, = 20,0-21, mm RW	0 - 0	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

3.83

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Test Specifications Fuel Injection Pumps (A) and Governors

40

WPP 001/4 EIC 3,9 g

En

PES 6 A 80 D 320 RS 2652

RSV 300-1050 A 0 B 2001-1 R

supersedes: -

company: Eicher

engine EDL6-1

Komb.-Nr. 0 400 876 314

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

Testoil-ISO 4113

2,15-2,25 (2,10-2,30)

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min 1	mm 2	cm³/100 strokes 3	cm ³ / 100 strokes 4	mm 2	cm ³ /100 strokes 3	mm 6
1050	10,4+0,1	6,5-6,6	0,2(0,35)			
300	6,9-7,1	1,1-1,7	0,2(0,3)			
600	-	C, Sp. 4 u. 5	0,3			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

	r rated speed Control rod travel mm		Interme	diate rated	sp ee d	Control- lever deflection in degrees 7	Lower rev/min 8	rated speed Control rod travel mm	3 Tol	rque control Control rod travel mm
loose	800 X =	0,3-1,0 5,0	•	•	-	ca. 25	300 100 300	6,5 min.19,0 6,9-7,1	รกก	10,4-10,5 11,4-11,5 10,9-11,1
ca.47	9,4 4,0 1310	1090-1100 1165-1195 0,3-1,7					515-575 650			

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop 6 Rotational-speed limitat			uel delivery naracteristics	Starting t	fuel delivery 5	4a Idle stop		
Test oil to rev/min 1	cm-/1000 strokes 2	Note: changed to) rev/min 3	rev/min	cm ³ /1000 strokes 5	rev/min	cm ³ /1000 strokes 7	rav/min 8	Control root travel mm
1050	64,5-65,5 (63,0-67,0)	1090-1100	600	68,5-70,5 (67,0-72,0)	100	100,0-110 = 16,2-16 mm RW		-

Checking values in brackets

* 1 mm less control rod travel than col. 2

3.83

BOSCH

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Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 VWW 2,4 g2

1. Edition

VE 6/10 F 1500 L 115-2 O 460 406 O17 supersedescompany: VWW

engine: 50 Hz. Aggr.

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

see VDT-W-460/...

Pre-stroke setting -

1. Settings	Rot. speed rev/min				Difference in delivery cm ³
1.1 Timing device travel	1200	2,4 - 2,8	mm		
1.2 Supply pump pressure	1200	4,3 - 4,9	bar (kgf/cm²)		
1.3 Full-load delivery without charge-air pressure	1200	30,5 -31,5	cm ³ /1000 strokes		2,5 (3,0)
Full-load delivery with charge-air pressure	-	-	cm ³ /1000 strokes		
1.4 idle speed regulation	350	6,0 -10,0	cm ³ /1000 strokes		2,5 (3,0)
1.5 Start	100	min. 35,0	cm³/1000 strokes		
1.6 Full-load speed regulation	1530	15,0 -21,0	cm ³ /1000 strokes		
1.7 Load-dependent start of delivery	-	-			

n = rev/min	900		1200	1 4 5 7	
mm	0,5-1,3 (0,	,2-1,6)	(1,9-3,3)	1450 3,5 - 4,3 (3	
n = rev/min	600			1450)
bar (kgf/cm²)	2,7-3,3		<u> </u>	5,0-5,6	
n = rev/min	600			1450)
cm ³ /10 s	55-138 (40-	153)		55-138 (40)-153)
<u> </u>	<u> </u>			3. Dimer	for assembly
Rot speed rev/min	Fuel delivery cm³/1000 strokes		Charge-air press. bar (kgf/cm²)	Designation	and adjustment mm
1600	max. 1,5			ĸ	3,2-3,4
1555	5,5-14,5	(5,0-15,0)		KF	6,3-6,6
1530		(14,0-22,0)		MS	1,4-1,6
1450	26,8-29,2	(25,7-30,3)		svs.	2,7
1200		(28,7-33,3)			
600	23,0-26,0	(21,5-27,5)			
				A	
400	0			6	
430	max. 1,5			Observations	
350		(4,0-12,0)			
350	min. 30				
450	max. 30				
	n = rev/min cm³/10 s Rot. speed rev/min 1600 1555 1530 1450 1200 600 400 430 350 350	The content Content	Total Province P	Total Section Section	Total Section Sectio

6

Testoil-ISO 4113

Test Specifications
Distributor-type
Fuel-injection Pumps

44

WPP 001/4 VWW 1,6 L 3

1. Edition

En

VE 4/9 F 2400 R 66-14

0 460 494 118

supersedescompany: VWW engine: 086

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

ma

see VDT-W-460/...

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1.1 Timing device travel	1500	2,3-2,7	men		
1.2 Supply pump pressure	1500	4,9-5,5	bar (kgf/cm²)		
1.3 Full-load delivery without charge-air pressure	1500	31,5-32,5	cm ² /1000 strokes		3,0
Full-load delivery with charge-air pressure	-	-	cm ³ /1000 strokes		
1.4 idle speed regulation	450	6,0-10,0	cm³/1000 strokes	}	3,0
1.5 Start	100	min. 38,0	cm³/1000 strokes		
1.6 Full-load speed regulation	2600	11,0-17,0	cm ³ /1000 strokes		
1.7 Load-dependent start of delivery	-	-		1	

2. Test Spe	cifications	checking values in brackets ()	
2.1 Tirning device	n = rev/min mm	1000 0,7-1,5(0,4-1,8)	1500 (1,8-3,2)	2400 5,5-6,3(5,2-6,6)
2.2 Supply pump	n = rev/min ber (kgt/cm²)	600 2,8-3,4		2400 7,0-7,6
Overflow delivery	n = rev/min cm ³ /10 s	600 55-138(40-153)		2400 55-138(40-153)
2.3 Fuel deliveries		1		3. Dimensions for assembly and adjustment

2.3 Fuel deliveries					3. Dimen	ISIONS for assembly and adjustmen
Speed control lever	Rot speed rev/men	Fuel delivery cm³/1000 strokes		Charge or press. ber (kgf/cm²)	Designation	men
End stop	2800	max.2,5	/40 0 49 0		K	3,2-3,4
	2600 2400	26,5-28,5	(10,0-18,0) (25,2-29,8)	1	KF	5,7-6,0
	1500	20,3-20,3	(29,7-34,3)	1 1	MS	1,3-1,5
	600	19,5-22,5	(18,0-24,0)	1	svs	
elektr.	400	0			A	
mech.	2400	0				
End stop	1200 600 450 400	max. 6,0 max. 7,0 min. 15,5	(4,0-12,0)		Observations	·
2.4 Solenold	mex. cut-in vol	~ · · · · · · · · · · · · · · · · · · ·	10 V			

BOSCH

2

Test Specifications Fuel Injection Pumps 2 and Governors

40

WPP 001/4 DAF 8,3 o 1 1. Edition

<u>En</u>

PE 6 P 100 A 720 RS 447 Komb.-Nr. 0 401 846 471

RQ 225/1200 PA 617

KŲ 223/1200 PA

supersedes _

company: DAF

engine: DHT 825

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at variations 3,2 - 3,3 mm (fr

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000 225	11,4+0, 5,3-5,		0,3(0,6) 0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin PRG che		Fulf-load s Setting po	•	-	cifications (4)	idle spec Setting p	-		cifications 5	Torque o	control
rev/min 1	travel	1		red travel	rev/min 6	rev/min 7	red treed	rev/min 9	travel	rev/min	travel
650	15,6-16,4	650	16,0	10,4 4,0 1450			5,4	225	min. 6,0 5,3- 5,5 05 = 2,0	1000 1200	11,4-11,5 11,3-11,5

Torque-control travel on flyweight assembly dimension a =

0 ~~

Speed regulation: A 235-1250 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	alivery on ontrol lever np. 40°C (104°F)	Control rod stop 3a	Fuel deliv	ery characteristics 36	Starting fi	tuel delivery 6
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	red travel cm ³ /1000 strokes/mm 7
LDA 1000	0,7 bar 118,0-120,0 (116,0-122,0)	-	LDA 600	0 bar 94,0-97,0 (92,0-99,0)	100	195,0-215,0 = RW 19,5 - 21,0 mm

Checking values in brackets

Test at n =

600

rev/min increasing pressure ~ in bar gauge pressure

DAF 8,3 o 1

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PE 6 PRS 447 + RQPA 617	0,32	0,70 0 0,27	11,2 - 11,3 11,4 - 11,5 10,4 - 10,5 10,6 - 10,8

Notes:

(1) when n =

revimin and gauge pressure =

0

Testoil-1SO 4113

Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 KHD 19,0 g 2. Edition

En

PE 12 A 95 D 610LS 2449

RQV 300-1250 AB 1105 L

engine: BF 12 L 413 F 353 kW / 2500 min

Komb.-Nr. 0 400 640 109

1 - 4 - 9 - 8 - 5 - 2 - 11 - 10 - 3 - 6 - 7 - 12 0 - 15 - 60 - 75 - 120 - 135 - 180 - 195 - 240 - 255 - 300 - 315° - 0,5° (-0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	stroke (1,75-1,95 <i>)</i> 1.80-1.90	mm (from BDC) : .							
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)				
rev/min 1	mm 2	cm ³ /100 strokes 3	cm ³ / 100 strokes 4	mm 2	cm ³ /100 strokes 3	mm 6				
1250	11,3	11,4 - 11,6	0,2(0,25							
300	+ U, 5,9-6,1	0,9 - 1,5	0,7(0,9)							
]		1							

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed			Intermediate	rated sp	bed	Lower rated	speed		Slidina s	leeve travel
deflection	rev/min Control rod travel mm 2	mm		Degree of deflection of control lever	rev/min 5	Control rod travel mm 4	Degree of deflection of control lever 7	rev/min	Control rod travel mm 3	rev/min	1 mm 11
max.	1250	15,2-17,	8				ca. 12	100 300	min. 7,5 5,9-6,1	580	0,3-1,3
ca. 66	10,3 4,0 1500	1290-130 1360-139 0-1,0	0				325-410			920 1250	
<u> </u>		<u></u>					③	<u> </u>			

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ter					Starting idle switchin	• , •	Torque- travel	control 5
rev/min 1	cm ³ /1000 strokes	rev/min 49	rev/min 4	cm ³ /1000 strokes 5	rev/min	cm³/1000 strok es 7	rev/min	travel mm g+0,1
LDA 1250	0,7bar 113,5-115,5 (111,5-117,5)	1290-1300*	LDA 900 LDA 500	0,7 bar 118,0-121,0 (116,0-123,0 0 bar 69,0- 71,0 (67,0- 73,0)	100-2	1 30,0-140,0 20 (80-240)	1250 1100 900	11,3 11,6 11,6

Checking values in brackets

* 1 mm less control rod travel than col. 2

4.83

BOSCH

KHD 19,0 g -2-

Testatn =

500

rev/min decreasing pressure = in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
2449 + 1105 L	0,7		11,6 - 11,7
		0,45	11,5 - 11,6
		0,20	10,0 - 10,2
		0	9,4 - 9,5
	,		
	·		

Notes:

(1) when n =

rev/min and gauge pressure =

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 FIA 13,8 a 3 4. Edition

Festoil-ISO 4113

ROV 225-1100 PA 177 R PE 6 P 120 A 720 RS 167 Z Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067.

supersedes.. 82 company:Fiat engine: 8210.02 154,5 kW (210 PS) Komb.-Nr. 0 401 846 378

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings (1,95-2,15)

Port closing at pres		2.00-2.10	mm (from BDC)			·
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	2 3		cm³/ 100 strokes 4	mm 2	cm³/100 strokes 3	mm: 6
1100	10,3+0,1	16,3 - 16,6	0,5(0,9)			
225	7,5-7,7	1,7 - 2,3	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

Upper rated	speed			Intermediate	rated spe	ed	Lower rated	speed		Slidina s	leeve travel
Degree of deflection of control lever	rev/min Control rod travel mm	mm ·	19 2a)	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	mm (1)
1	2	3)	4	5	6	7	8	9	10	11
max.	1100	15,2-17,	8	•	•	-	ca.13	100	min.9,0	225	0,9-1,0
								225	7,5-7,7	400 100	2,4-2,6 8,4
ca. 62		1140-115 1190-122 0 - 1	20				285 - 400			100	0,4

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ter	-	Rotational-speed (20) limitation intermediate speed	Fuel delivery characteristics (5a) high ide speed (50)		Starting Idle switchir	. •	Torque- travel	Control rod
rev/men	cm ³ /1000 strokes	rev/min · 4	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	travel mm
1	2	3	4	5	6	7	8	9
1100	163,0-1660 (160,0-169,0)	1140-1150*			100	19,5-21,0 mm RW		

Chucking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications 0 Fuel Injection Pumps 1 and Governors

WPP 001/4 MB 21.9 b

2. Edition

PE12P120A320LS3819-1

ROV 350-1150PA493

PA 493-2

1-5-9-8-3-4-11-10-2-6-7-12

0-15-60-75-120-135-180-195-240-255-300-315* $^{\pm}0,5$ *($^{\pm}0,75$ *)

supersedes 0.82 company: Daimler-Benz

OM 424 A

390 kW (530 PS)

Komb.-Nr. 0 401 840 710

* 1 mm less control rod travel than col. 2

3.83

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel injection Pump Settings

Port closing at prestroke (3.95-4.15)

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel rnm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	11,1+0,	1 15,9-16,1	0,5(0,8)			
350	4,8-5,	0 1,4 - 2,0	0,8(0,7)			

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

Upper rated s	peed		Intermediate	rated sp	eed	Lower rated	speed		Sliding sleeve travel	
deflection	rev/min Control	Control rod travel	Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel		0
	rod travel mm	rev/min 2s	lever	rev/min 5	mm •	lever	rev/min	mm 3	rev/min	mm 11
<u>-</u>	465	45 0 47 0	·	ļ <u> </u>		100	400	. 0 5		
max.	1150	15,2-17,8	-	-	-	ca.14	100	min.8,5	300	0,9-1,1
ca. 64	10,	1190-1200 1280-1310					350		580 870	3,5-3,7 5,2-5,4
	4,0					1			1150	7,8
į	1375	0-1,0	ļ			400-60	þ			
						(3a)				

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ten		Rotational-speed 20 fimitation intermediate speed	Fuel delichigh idle s	rery characteristics (54)	Starting Idle switching	• . •	Torque- travel	control (5)
rev/min	cm³/1000 strokes	rev/min 4	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1 000 strokes	rev/min	travel mm
1	2	3	4	5	6	7	8	9
LDA 1150	0,6 bar 159,0-161,0 (156,0-164,0)	1190-1200*	LDA 650 LDA 500	0,6 bar 164,0-170,0 (161,0-173,0 0 bar 127,0-129,0 (124,0-132,0		130,0-150,0	-	•

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067.

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

500			
Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PE12PLS3819-1 +PA 493	0,38	0,60 0 0,32	10,8-10,9 11,1-11,2 9,8-9,9 10,1-10,3

Notes:

(1) when n =

rev/min and gauge pressure =



Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MB 5,7 t Edition

Festoil-ISO 4113

PES 6 A 90 D 410 RS2293 Komb.-Nr. 0 400 846 394 RQV 300-1425 AB982DL

supersede 77 compan Daimler-Benz

engine OM 352 A 126,5 kW (172 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

mm (from BDC)

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1400	11,1+0,	7,7 - 7,8	0,3(0,45)			
300	7,8-8,0	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

Upper rated	speed		Intermediate	e rated sp	eed	Lower rated	speed	Sliding st	eeve travel	
Degree of deflection of control tever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel		mm
1	2	3	4	5	6	7	8	9	10	11
max.	1425	16,0-19,3	-	-	-	ca.10	100 300	min.7,5 5,9-6,1	300	0,6-1,4
ca.61	4.0	1440-1450 1555-1585					570 - 800	630=2,0	1000 1450	5,0-5,4 8,3
	1675	0 - 1,0					 370 -	440	-	-

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load of Control-ro Test oil te		Rotational-speed limitation	Fuel deln	very characteristics	Starting Idle switchir	fuel delivery	Intermed rotationa Torque- travel	speed
rev/min	cm³/1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	72	3	4	5	6	7	8	+0,1
LDA 140'	0,3 bar 77,0 - 78,0 (75,0 - 80,0)	1440-1450 *	LDA 500	0, 18 bar 70,0 - 73,0 (68,0 - 75,0)	100	13,7-14,3 mm RW 9,0-15,0	1400 1200	
1200	79,0 - 82,0 (77,0 - 84,0)		LDA 1400	0 bar 62,0 - 64,0 (60,0 - 66,0)	100-	220 240)		

Checking values in brackets

* 1 mm less control rod travel than col. 2

Geschaftspereich KH. Kundendianst. Kfz-Ausrustung.

1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stutigart 1. Printed in the Federal Republic of Germany. Imprime en République Fédérale d'Allemagne par Robert Bosch GmbH.

MB 5,7 t -2-

Testatn =

500

revimin decreasing pressure - in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	diminution Control rod travel- difference mm (1)
PES 6 ARS 2293 + RQVAB 982 DL	0,21	0,70 0 0,16	11,0-11,1 11,9-12,0 9,3-9,4 9,6-10,0
·			

Notes:

(1) when n =

rev/min and gauge pressure =

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 KHD 12,7 n 2. Edition

RQV 300-1250 AB 1128 L PE 8 A 95 D 410 LS 2609 Komb.-Nr. 0 400 648 129

supersedes 82 companKHD engine: BF 8 L 413 F 235 kW (320 PS) 2500 min -

1 - 8 - 7 - 2 - 6 - 5 - 4 - 3 je 45 ° $^{+}_{-0,5}$ ° ($^{+}_{-0,75}$ °)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	troke /	1,0-1,9	mm (from BDC)	mm (from BDC)								
Rotational speed	Control rod travel	Fuel delivery cm ³ /100 strokes	Difference cm ³ /	Centroi rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)						
1	2	3	100 strokes 4	mm 2	cm ³ /100 strokes 3	mm 6						
1250	11,6+0,1	11,6-11,7	0,3(0,6)									
300	5,9-6,1	1,6-2,2	0,3(0,5)									
				}								

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

Testoil-ISO 4113

Upper rated:	speed	·		Intermediate	rated sp	eed	Lower rated	speed		Cudiana	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min 3	(1) (2)	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min 8	Control rod travel mm 3	rev/min	mm
							 				
max.	1250	15,2-17	,8	-	-	-	ca.11		min. 7,5		0,5-0,8
ca. 57		1290-130 1370-140 0 - 1					380-55	300	5,9-6,1		2,9-3,1 4,7-4,9 7,7
	1430	0 - 1					3				

Torque conitol travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2		Rotational-speed (2b tirritation intermediate speed	Fuel delin high idle :	Fuel delivery characteristics (5a) high idle speed (5b)		fuel delivery 6	Torque- travel	Control rod travel mm	
rev/min 1	cm ³ /1000 strokes . 2	rev/min 4a 3	rev/min 4	rev/min cm³/1000 strokes		rev/min cm³/1000 strokeu 6 7			
LDA 1250	0,7 bar 116,0-117,0 (114,0-119,0	1290-1300 *	LDA 750	0,7 bar 121,0-124,0 (119,0-126,0		130,0-140,0 15,2- 15,6 mm RW	750	11,6+0, 12,4+0, 12,1+0,	
	,		LDA 500	0 bar 101,5-103,5 (99,5-105,5)					

Chacking values in brackets

1 mm less control rod travel then col. 2

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PE 8 A LS2609 + AB 1128	0,27	0,7 0	12,1-12,2 12,4-12,5 11,7-11,8

Notes

(1) when n =

rev/min and gauge pressure =

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 21,9 € 2. Edition

<u>En</u>

PE 12 P 120 A 320 LS 3821

ROV 350-1150 PA 493-1

1 - 5 - 9 - 8 - 3 - 4 - 11- 10- 2 - 6 - 7 - 12 +

0 -15 -60 -75 -120-135-180-195-240-255-300-315° - 0,5°

Values only apply to test nozzle-and-holder assmf⁺ 0.75°) bly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

superseded 0.82
companyDaimler-Benz
engine: OM 424 LA
441 kW (600 PS)
Schneefräse

Komb.-Nr.0401 840 712

A. Fuel Injection Pump Settings

mm (from BDC) Zyl. 12 Port closing at prestroke (3.95-4.15 Spring pre-tensioning (torque-control valve) Control rod Control rod travel Fuel delivery **Fuel delivery** Difference Rotational speed cm3/ cm3/100 strokes 100 strokes mm cm³/100 strokes rev/min mm 17,5-17,7 0.5(0.8)11,6+0, 1150 1.4-2.2 0,8(0,7) 5,0-5,2 350 650 11,6+0, 0,75 C,Sp.4u.5 500 10,4+0,

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated t	peed		Intermediate	rated sp	eed	Lower rated	speed		Sliding s	leeve travel
1000.000	rev/min Control	Control rod travel	Degree of deflection		Control rod travel	Degree of deflection		Control rod travel		0
of control lever	rod travel	mm rev/min 2a	of control lever	rev/min	mm 4	of control lever	rev/min	mm 3	l i	m m
1	2	3	14	5	6	7	8	9	10	11
.max.	1150	15,2-17,8	-		-	ca. 8	100	min.6,7		
ca.58	10,6	1190-1200	Ī				350	15,0-5,2	580 870	3,4-3,8 5,1-5,4
04.55	4,0	1240-1270)		ł				1150	7,8
	1350	0 - 1,0]			400-600	1			, ,
Ì									ļ	
1		1				<u></u>	<u> </u>		<u> </u>	l

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-roc Test oil terr		Rotational-speed 20 limitation intermediate speed	Fuel deliv high idle s		Starting die switchin	•	Torque- travel	control 5 Control rod travel
rev/min	cm³/1000 strokes	rev/min 4	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	8	7	8	9
LDA 1150	0,6 bar 175,0-177,0 (172,0-180,0)	1190-1200*	LDA 650 LDA 500	0,6 bar 171,0-179,0 (168,0-182,0) 0 bar 143,0-145,0 (140,0-148,0)		140,0-160,0	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

3.83

BOSCH

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

300								
Pump/governor	Setting	Measurement	diminution Control rod travel- difference					
	Gauge pressure = bar	Gauge pressure = bar	mm (1)					
PE12PLS3821	0,39		11,3 - 11,4					
+PA493-1		0,60	11,6 - 11,7					
		0	10,4 - 10,5					
		0,30	10,6 - 10,8					

Notes.

(1) when n =

rev/min and gauge pressure =

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAC 11,0 x 6

1. Edition

US-RQV300/600-1050PA621-7K

companyMack EME 6 - 250

250 PS

Komb.-Nr. 9 400 231 171

Testoil-ISO 4113

US-PES6P110A720RS6006

PLE-MaB = 0,740" - 0,820"

See Service Information VDT-I-MAC 002!

All test specifications are valid for Bosch-Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{pmatrix} 3, 2-3, 3 \\ (3, 15-3, 35) \end{pmatrix}$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1050	11,7+0,1	17,7 - 17,9	0,4			
300	5,2-5,4	2,4 - 3,0	0,4			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediat	Intermediate rated speed			speed	Stiding sleeve travel		
Degree of deflection of control lever	I. i	rev/min (2	deflection of control	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	TO TOWN
ļ <u>. </u>	2	3	<u> </u>	12	6	ļ ⁷	8	9	10	11
max.	1120	15, 2-17, 8	-	-	-	ca. 20	250	9,8-11,3	-	-
ca. 61	10,7	1090-1100	T				300	7,9-8,1		
	4,0 1230	1165-1195 0 - 1,0				(3a)	400 690-1	3,8-5,2 750 = 2,0		

Torque control travel a =

ma

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2)		Rotational-speed (2t) limitation intermediate speed		Fuel delivery characteristics (5a) high idle speed (5b)		Starting Idle switchin	. •	Torque-control 5 travel	
rev/min		rev/min	•	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	travel
1050	176,5-178,5	1090-1100	*	850 630 800	184,0-188,0 202,0-206,0 PLE 121,0-129,0	100	120,0-180,0	850 750 630	11,7 11,6+0,1 11,9+0,1 12,2+0,1 12,8+0,1 12,1+0,1

Checking values in brackets

* 1 mm less control rad travel than col. 2